The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. XL. CHICAGO, ILLINOIS, MAY 23, 1903. No. 21.

Original Articles.

SUPPRESSION OF URINE.

WITH REPORT OF A CASE ENDURING EIGHT DAYS; RELIEVED BY DECAPSULATION OF THE KIDNEYS.*

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CINCINNATI.

The subject of suppression of urine has been forcibly called to the mind of the writer by a rather unusual case which it is believed may serve as a just basis for the discussion of this topic. This case will first be reported in detail, then certain general considerations will be presented.

THE CASE REPORTED.

Mrs. L., aged 40, slight in figure. The family history is negative as regards transmissible disease. The personal history is that of an individual who has enjoyed unusually good health, who was married at 19 and has born 5 children, 2 of whom are dead. The living children are 11 years, 9 years and 17 months of age, and are in good health. She has had two miscarriages, one four years ago, the other six months ago. She has always done her own housework, leads an active and practical life, and has impressed the writer with the fact that she possesses more than the usual amount of good common sense. She gives no history of previous disease of the kidneys.

About the middle of February, 1903, she found herself to be about six weeks pregnant and under stress of household worries was led to adopt measures which would relieve her of this added responsibility. She took a medicine, the principal ingredient of which was ergot, in uncertain quantities for several days without definite result, then inserted a catheter into the womb. A considerable amount of bleeding followed and continued for several days. On Wednesday, February 25, she became very feverish and sent for her family physician, Dr. Frank Perry of Norwood, Ohio. Dr. Perry found the patient in a decidedly anemic condition, with a pulse of 110 and temperature of 104 F. There was a bloody discharge from the vagina. She said that she had discharged a fleshy mass which she considered to be the fetus and afterbirth. Dr. Perry gave her a thorough vaginal, then an intra-uterine douche of hot lysol solution, one teaspoonful to two quarts of water and prescribed quinin in 5-grain doses every three hours per mouth.

On the following day, Thursday, February 26, her temperature was 100 F. and her general condition satisfactory. She complained of some pain in urination, however, and at about noon passed 8 ounces of urine, which was very thick and highly colored.

On Friday, February 27, the general condition continued to be satisfactory, but she had passed no urine since the preceding day at noon. She was catheterized, but no urine was found. The catheter was pinched and withdrawn and found to contain ten drops of brick-colored fluid, which was considered to be bloody urine. The bladder was irrigated and infusions of digitalis, large amounts of water and fluid diet were prescribed.

On February 28 no urine could be obtained by catheter, but she stated that a few drops had passed. Acetate of potash and saline purgatives were added to the medication. The writer was asked to see the patient in consultation on this date. The temperature, pulse and respiration were normal, the patient was very cheerful, and stated that she did not feel sick at all. The pupils were normal in size and reaction to light and there was no disturbance of vision. Feeling that she needed careful nursing and hot air baths her removal to Christ's Hospital was advised. This advice was followed and she was admitted to this hospital at 7:40 p. m., with a temperature of 98.8, pulse 88, respiration 20. She was catheterized again, but no urine was found. At 9 p. m. she received an intravenous injection of 60 ounces of normal salt solution. The condition was believed to be the result of circulatory disturbance in the kidney, and it was hoped that the intravenous injection of salt solution would equalize the blood distribution and stimulate vasomotor coordination. At 10 p. m. she had a moderately severe chill, with a temperature of 101.6 F. After which she was given hot drinks in abundance and perspired very freely.

THIRD DAY OF SUPPRESSION.

March 1.—At 1:30 a. m. she passed one-half ounce of urine. At 3 a. m., six hours after the first, she received a second intravenous injection of 60 ounces of normal salt solution. During this day her temperature, pulse and respiration remained practically normal. She was given infusion of digitalis as a diuretic and vasomotor tonic. She was purged freely with Epsom salts, 24 watery stools being recorded. She received two hot-air baths. The loins were cupped for 15 minutes. Sixty ounces of salt solution were injected into the veins at 10 a. m., and again at 8 p. m. The most trustworthy of our nurses were assigned to the patient and instructed to make absolutely certain that no urine was passed without our knowledge. The patient was, therefore, catheterized before each stool and pads placed under her for the detection of any urine that might be passed surreptitiously; 40 minims were obtained at one time, 15 at another, and two or three at still other times. The sum total of urine passed during her first 24 hours in the hospital was about five drams. This urine contained a heavy percentage of albumin, no casts, white blood and round epithelial cells and a few red blood cells. The urea percentage was 1.4, as estimated by the Doremus apparatus.

FOURTH DAY OF SUPPRESSION.

March 2.—Patient's temperature varied from 98.6 to 99.8 F., the pulse remained at 70, and respirations at 20. She continued to feel well except for the weakness consequent to such vigorous purging and such continued disturbance. It will appear from the record that the patient was very much disturbed during her first twenty-four hours in the hospital, but she was given, in so far as was possible, the extreme care from muscular exertion and irritation that is accorded the patient who suffers from severe surgical shock. On this date, March 2, she was perfectly composed and had no aches nor pains. Diuretin was now substituted for infusion of digitalis and calomel in one-fourth grain doses given first every hour, then

* Read at the Fifty-fourth Annual Session of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. H. O. Walker, A. J. Ochsner and DeForest Willard.

continued as a three-hourly medication. On this day she was taken to the operating room and her uterus emptied by curettage of a large amount of decomposing placental tissue. This was done without an anesthetic. The interior of the bladder was at the same time cursorily examined with a cystoscope and found to be both normal in appearance and empty. During this day the bowels moved seven times, and the stool contained blood. The patient vomited a great deal and did not retain much nourishment. The diuretin seemed to be the cause of the gastric irritation, and was discontinued after 12 hours' trial. The total amount of urine obtained by the many catheterizations did not exceed thirty drops. The hot-air baths were continued, but no more salt solution was injected into the veins. It was considered that in the absence of results from the injection of 8 quarts in 24 hours nothing could be expected from further repetitions of the dose. The patient slept fairly well.

FIFTH DAY OF SUPPRESSION.

March 3.—Temperature remained below 99.6 F., pulse 74 to 80, respiration 20. Calomel was continued in one-fourth grain doses every three hours. The bowels moved 7 times. Steam baths, for 25 minutes, were continued. Patient continues to vomit. A sum total of ten drops of urine was obtained by catheterization during the 24 hours. The stool of the patient was examined for urea and found to contain 0.6 per cent.

SIXTH DAY OF SUPPRESSION.

March 4.—Temperature 98.2 to 98.8 F., pulse 70 to 84, respiration 20. Patient slept a great deal. Bowels did not move so freely. An attempt was made to place patient in cabinet bath, but she was too weak to sit up and the steam baths were therefore continued. The patient felt well while in bed. She complained of no headache, no ocular symptoms; in fact, no pains in any region. The calomel was continued. Ten drops of urine are recorded for this period of 24 hours. The character of this urine remained the same. The stool of the patient was again examined for urea and found to contain 0.7 per cent. The uterus was irrigated because of a continuance of a discharge from the external os. On this date patient was taken to operating room, and a second examination of bladder made. The bladder was normal in color, not inflamed and empty. No water could be seen to issue from the ureters and certainly none collected in the bladder during the half hour that the examination was continued with the bladder distended by air. There was no evidence of a calculus in the orifice of either ureter and no bulging at this site. On the contrary, the right ureter was widely open. During each day of the disease the kidneys were both thoroughly and satisfactorily palpated with a view to detecting a developing hydronephrosis from simultaneous obstruction of the ureters by calculi. The kidneys could be felt to be somewhat enlarged from the start, but there seemed to be no progressive increase in their size.

SEVENTH DAY OF SUPPRESSION.

March 5.—Temperature remained 98.6 F., pulse 72 to 90, respiration 20. General condition shows marked failure in strength. The patient slept most of the time and was aroused with difficulty. Citrate of magnesia was given; strontium bromid was given in 10-grain doses every four hours as a diuretic. Calomel was continued. Bowels moved eleven times. Urine was obtained four times by catheter; on two occasions one dram was obtained, on another one-half dram, on another four drops. This urine was examined carefully. The reaction was acid, color amber and cloudy, albumin was present in considerable amount, sugar was absent. The urea percentage was 1.4. On microscopic examination no casts were found, but three varieties of cells were present—white blood cells, bladder epithelial cells and round kidney cells. The white blood and the bladder epithelial cells presented the usual appearance, but the kidney cells presented a most striking example of fatty degeneration. This condition of the kidney cells had been noted in the urine of the preceding days, but to so slight a degree that it was not given much thought. The four specimens obtained at different times on this seventh day of the suppression demonstrated a very rapidly-increasing number of these fatty cells until the evening specimens presented a most striking picture.

The rapidly increasing numbers of degenerated kidney cells were considered to indicate that the kidney parenchyma was undergoing rapid degenerative changes by reason of the prolonged stasis of blood in its vessels. It was taken as an index of the pathologic changes taking place in the kidney and as a finger-board pointing out the correct line of treatment.

The condition of this patient had been explained from the start, in the writer's mind, on a basis of vasomotor disturbance whereby a stasis of blood, probably under great tension, had occurred in both kidneys. Blood was not flowing through the glomeruli, therefore the secretion of urine was in abeyance. The medication employed was directed to a re-establishment of this circulation and to an elimination of as much urea as possible by way of the skin, bowels and lungs. A continuance of this medication and general line of treatment was believed to be justifiable so long as the condition of the patient remained fairly good. Nevertheless, the operating-room force was held in readiness during this entire time for such operative treatment as might be demanded.

The definite evidence of rapid degenerative changes in the parenchyma of the kidney seemed to the writer to present a positive indication for such operative intervention and the patient was accordingly prepared for this treatment.

On March 6, and at the completion of her eighth day of suppression, the patient was taken to the operating room. Chloroform was used as the anesthetic. The right kidney was exposed by an oblique incision in the loin through all structures (the possibility of extension of the incision for the exploration of the ureters made a muscle-splitting operation undesirable). This kidney was certainly one-half larger, if not double the size of a normal kidney. Its external surface presented a mottled, purplish-blue appearance which at once suggested the appearance of the face of a baby whose head had just been born with the cord compressed. The kidney was lifted from its bed and the body of the kidney, the pelvis and the ureter thoroughly palpated. Nothing abnormal could be found and the pelvis certainly was not dilated. A hollow needle was thrust into the pelvis through the cortex for the double purpose of probing for stone and drawing off urine from a dilated pelvis. This investigation gave negative results.

The opinion already expressed regarding blood stasis seemed confirmed and the capsule of the kidney was split from end to end and totally removed. When an incision was made in the capsule its edges retracted and the cortex bulged through the incision as if under great tension, this in a manner entirely analogous to that seen in brain operations when the dura is opened. Very free hemorrhage followed the separation of the capsule from the kidney, but this membrane was nowhere firmly attached to the cortex by fibrous wedges projected inward. The capsule was of about normal thickness and was stripped off easily. The kidney parenchyma was of a yellowish-gray appearance after the blood-letting of decapsulation and was so brittle that the slightest touch of an instrument seemed to lacerate it. At one time my assistant changed the position of a very blunt abdominal retractor, and in so doing struck the convexity of the kidney. A lacerated wound three-fourths of an inch long and one-half inch deep resulted. The naked eye appearance of the cortex was that of marked fatty degeneration. The capsule of the kidney was entirely excised, the kidney dropped back into its bed, gauze drainage was inserted and the external wound closed. A provisional stitch was inserted for the purpose of completing the primary closure of the wound after the removal of the drainage 24 hours later.

Exactly the same procedure was immediately applied to the left kidney. This organ presented precisely the same anatomic conditions; the pelvis was likewise found to be free and the capsule was removed. The time consumed in the double operation was 45 minutes. The patient stood the operation perfectly well, her pulse did not exceed 100, and she was put to bed in a most satisfactory condition. At the time of her return to bed the pulse was 70 and the respirations 20 per minute. There was no vomiting from the anesthetic.

One hour after operation the patient expressed a desire to urinate and two ounces of intensely bloody urine were obtained by catheter. This urine was neutral in reaction, albumin was abundant in a filtered and centrifuged specimen and the urea percentage was 1.4. Microscopically red blood cells were present in large numbers; the same round cells presenting in advanced stage of fatty degeneration were found in abundance, but no casts.

The temperature remained normal throughout the remainder of the day, the pulse varied from 72 to 80, the respirations from 24 to 28.

At 6 p. m. (six hours after operation) 2¼ ounces of urine possessing the same naked eye, chemical and microscopic characteristics were voided by the patient.

At 9 p. m. 1¾ ounces of urine of similar nature were voided.

The patient was given water per mouth in six hours after operation.

At 1:30 a. m. 2 ounces and at 5:30 a. m. 4¼ ounces were passed. Three ounces at 8:30 a. m., and 4 ounces at 11:40 a. m., gave a sum total of 21 ounces of urine passed in the first twenty-four hours after operation.

The urine continued to be intensely bloody, the reaction became acid at 1:30 a. m., the specific gravity was 1,009, and the urea percentage had diminished to 1 in the morning urine. The fatty cells persisted to the end of the twenty-four hours. An 8-ounce bottle containing the first urine passed showed a red deposit ¼ inch thick after settling for a few hours. The patient was rather drowsy during the day, had some abdominal pain, and vomited once.

The second twenty-four hours after operation, the temperature, respiration and pulse remained normal. The urine was passed in from 3 to 10-ounce quantities and aggregated 48 ounces. The blood rapidly disappeared and the urine became amber color by the end of this period. The reaction continued to be acid. The specific gravity did not vary from 1,008. The urea percentage varied from .85 to 1.5. Albumin was present. Red blood cells were always present microscopically. The fatty cells had disappeared by the end of the period. No casts were found in any specimen.

The patient rested well, took liquid food with much indifference, and vomited bile once or twice. She was delirious for two hours during the night, but slept well with this exception. The gauze drainage was removed and the provisional sutures tied.

The third twenty-four hours after operation, temperature, respiration and pulse remained normal. The amount of urine aggregated 89 ounces. The character was about the same as that during the second 24 hours except that it became bloody again for about six hours, then returned to amber. The patient rested well. The diet consisted of toast, egg, cocoa, oyster broth, ice cream, and orange albumin water. There was great prostration, but patient was cheerful. The bowels moved well.

The fourth twenty-four hours, temperature, respiration and pulse normal. Total amount of urine 56 ounces. Urine clear; very few red cells; no casts; trace of albumin; specific gravity 1,009; reaction acid; no sugar.

The fifth twenty-four hours, temperature, respiration and pulse normal. Total amount of urine 77 ounces. General condition good. Quality of urine the same as during the fourth day. Appetite vacillating. Some delirium at night, yet patient slept well. Patient received eggnog and strychnin sulphate grs. 1/60 as continuous tonic stimulation.

The sixth twenty-four hours, temperature and respiration normal. Pulse became elevated to 100. Total amount of urine 64 ounces. Urine amber color and cloudy; reaction acid; specific gravity 1,009; trace of albumin; no sugar. Microscopically amorphous urates, a very few red blood cells and no casts were found. Urea percentage 1.4.

The seventh twenty-four hours, temperature 98.4 to 99.2, pulse 90 to 120 and bounding, respiration 20 to 26. Total amount of urine passed 47 ounces. Quality of urine same as on sixth day. Patient felt very weak and looked very pale, but said that she had no pain and felt very well. Appetite failed somewhat.

The eighth twenty-four hours, temperature, respiration and pulse normal. Total urine 52 ounces. Quality same as on sixth day.

The ninth twenty-four hours, temperature 90 to 102, pulse 108 to 120 and bounding. Respiration 24. Total urine 45 ounces. Quality of urine same, except that it is now perfectly clear. No explanation could be found for the rise in temperature and pulse rate. One physician who saw the patient at this time stated that the pulse was that of a patient just previous to puerperal eclampsia and advised the use of a veratrum viride. This was not given, however.

The tenth day, temperature 99 to 101, pulse 80 to 100, respiration 24. Total amount of urine 44 ounces. General strength improved, patient feels better and asked to get up. Quality of urine the same as on sixth day.

During the eleventh day the total amount of urine was 47 ounces; during the twelfth day 52 ounces; during the thirteenth day 48 ounces; during the fourteenth day 78 ounces; during the fifteenth day 62 ounces; during the sixteenth day 65 ounces; during the seventeenth day 47 ounces; during the eighteenth day 64 ounces; during the nineteenth day 80 ounces. On this date the patient returned to her home, and the husband has reported that the total amount of urine has averaged from four to four and one-half pints per day for every day since March 25.

The temperature returned to normal after the tenth day and remained so. The strength of the patient improved steadily, and she sat up on the sixteenth day after operation. The appetite improved rapidly until it became normal. The urine became normal on the seventeenth day.

It is believed that this patient suffered from a vasomotor suppression of urine. There are two factors which may have acted in a causative relationship to the condition. Either the ergot which was contained in the emmenagogue caused a strong and persistent vaso-constriction, or a strong reflex was communicated to the kidney at the time of the destruction of the ovum or by the uterine irrigation. Neither of these could be called an overpowering reflex, and it is certainly true that such a result would be most unusual, yet at the same time we must take into consideration the fact that the susceptibility of the nervous system to irritation and to reflex, particularly in women, is a most variable quantity. The patient was not exposed to conditions which would cause an acute nephritis, nor did she present the slightest symptom of this disease at any time. She was perfectly well up to the time of the destruction of the ovum. The temperature which she presented at the time of Dr. Perry's first visit is not believed to have been the result of septic infection, since it disappeared after one flushing of the uterus, and the material found in the uterus at the time of curettage did not seem to be infected. It is, of course, possible that there was some absorption of decomposition products into the general circulation, yet in the absence of any disturbance of the temperature and pulse rate it is difficult to believe that these products were very poisonous.

GENERAL CONSIDERATIONS.

The writer has been impressed on more than one occasion by the fact that our ready reference text-books of surgery contain little or no mention of the subject of suppression of urine. The condition is given a brief

mention as a symptom, in connection with certain surgical diseases of the kidney and ureter, but is nowhere discussed in full, in so far as he knows, as a definite condition entitled to elaboration from the viewpoints of etiology, diagnosis and treatment. The literature on this subject, even though meager, is valuable and should be collected into such available form as will give a definite classification and a clear exposition of the subject. It has been the unfortunate experience of the writer to encounter this condition in a variety of forms; indeed, every surgeon has his quota of deaths after operation from suppression of urine and every surgeon knows the anxiety that is felt during the hours of its possibility and of its endurance.

It has been stated that suppression of urine is merely a symptom and not a disease. It is certainly true that suppression of urine may be but a single symptom in the picture of a given disease, e. g., cancer of the uterus with involvement of the ureters, but it is likewise true that in the majority of cases which are presented to the surgeon the suppression of urine is the one condition which imperatively demands treatment, and the one condition which is going to kill the patient unless relieved. Furthermore, each case of suppression of urine must be accurately and painstakingly studied from the viewpoints of etiology, pathology, symptoms, diagnosis and treatment, and it requires but slight reflection to see that the investigation and the management of these cases present unusual difficulties.

Such, it seems to the author, are the claims of this subject to a place among surgical conditions.

The present paper does not present for your consideration a solution to the problems of suspended kidney function, nor does it furnish a full presentation of the subject. The case, which is recorded above, is offered as a contribution to the meager literature on this subject, while the appended general discussion is presented in the purely suggestive light of personal impression gained from clinical experience and from some reading.

DEFINITION.

Suppression of urine is commonly defined as a condition in which the excretion of urine from the tubules of the kidney is entirely suspended or in which no urine is transmitted to the bladder. This definition is made to cover two distinct conditions and is believed by the author to be open to criticism. It would seem more accurate to omit the latter clause and say that suppression of urine is a condition in which the excretion of urine from the parenchyma of the kidney is suspended. When one or both ureters are mechanically obstructed the parenchyma of the kidney continues to perform its functions until a quantity of urine varying from a few ounces to one gallon has been secreted and until the pressure has become sufficiently great to arrest secretory pressure. When the urethra is mechanically obstructed the same accumulation of urine occurs behind the obstruction and the same result may follow in the kidney. Yet an accumulation of urine behind an urethral obstruction is called retention of urine, that behind an ureteral obstruction a suppression of urine, and the two are carefully differentiated. To my mind they are in reality one and the same lesion, except for the location in the tract of the obstruction, in the seriousness of the condition and in the accessibility of the lesion. The one may be diagnosticated and relieved by urethral, the other by ureteral examination and catheterization. Furthermore, the correct surgical treatment in each case is directed to the seat of mechanical obstruction with the one purpose of liberating the pent-up kidney secretions and of preventing or relieving serious secondary lesions in the kidneys.

In suppression of urine, as defined, the secreting mechanism itself is at fault; the lesion is primary in the kidney, and no urine is separated from the blood. The treatment of the condition must be based on entirely different grounds, and the lesion must be studied from the physiologic side.

We have, then, two distinct conditions, the one mechanical and always surgical, the other physiologic and sometimes surgical, and each worthy of careful study from the viewpoint of etiology and pathology. An appropriate division of that condition in which no urine is discharged from the body would seem to be: 1. Vesical and urethral retention or obstruction of urine. 2. Ureteral retention or obstruction of urine. 3. Suppression of urine.

It is believed by the writer that the above modifications in the definition of suppression of urine or anuria should be made. Yet the present discussion of the condition will be pursued according to the usual definition and a division of the subject will be made into an obstructive and non-obstructive form, each of which may be elaborated under the heading of etiology.

ETIOLOGY.

The condition presented to the physician is one of "no urine," and it becomes necessary for him to seek the cause of this condition. The following table is offered as a concise statement of the causes of suppression of urine.

I. OBSTRUCTIVE SUPPRESSION OF URINE may result from:

A. A calculus, a blood clot or a plug of pus in the ureter. This may cause complete obstruction.
   (a) In the ureter of the only existing kidney.
   (b) In a single fused ureter from the two kidneys or from a horseshoe kidney.
   (c) In the ureter of the only functionating kidney, the other kidney having been previously destroyed by calculous obstruction, tuberculosis, nephrolithiasis, suppuration, tumor, cyst, etc., etc. This is by far the most common form.
   (d) From the simultaneous obstruction of both ureters (rare).
B. Stricture of the ureter under the four above-named conditions.
C. Kink in the ureter of a floating kidney or angular attachment of the ureter to the pelvis under similar conditions.
D. Tumor of the kidney.
E. Tumor of the base of the bladder or of other organ involving both ureters.
F. External pressure.
   (a) Myomata of the uterus.
   (b) Cancer of the uterus or rectum.
   (c) Abdominal tumors.
   (d) Laceration of the cervix with subsequent involvement of the ureter in the cicatrix.
G. Venous congestion. An excessive degree of exudate when associated with congestion of the intertubular veins may cause a degree of lateral pressure which may result in suppression. The suppression of urine in the author's case may be explained in this way.

II. NON-OBSTRUCTIVE SUPPRESSION OF URINE may occur as a result of:

A. *Reflex circulatory* or *vasomotor disturbance* in the kidney. This may occur—
   (a) *After operations* which concern in any way the complex sympathetic nervous mechanism of the abdominal cavity, *e. g.*, nephrectomy, nephrotomy, operations on the bladder, operations on the male or female genital tract.
   (b) After the *passage of a catheter* or a sound into the bladder. This agent may act either as a reflex or as a septic infection.
   (c) As a result of the *lodgment of a calculus* in one ureter, the other remaining free. The reflex in this case may result either from the nerve irritation at the site of lodgment of the calculus or from the acute tension which occurs within the pelvis of the obstructed kidney.
   (d) *Trauma*, subcutaneous or direct. In a case related by Dr. Oliver, a bullet merely cut a groove in the convexity of one kidney yet the patient died from suppression of urine.
   (e) *Hysteria.*
   (f) *Drug vaso-constriction, e. g., ergot*, auto-nephrotoxins.
   (g) *Extensive burns*, may act either by a reflex or by sepsis.
   (h) *Meningitis.* (A case reported by Fussell, in *Pediatrics*, August, 1901.)

B. *Degenerative changes in the kidney.* These may result from:
   (a) Poisoning by drugs such as phosphorus, carbolic acid, cantharides, turpentine, etc., possibly by ether and chloroform when used for surgical anesthesia.

(b) Acute infectious diseases such as septicemia, cholera, scarlet fever, dysentery, etc.
(c) Acute nephritis.
(d) Auto-nephrotoxins. This is a toxic product, a cytotoxin, which is formed as a result of active disintegration in one kidney and which acts to produce marked degenerative changes in the opposite sound kidney. Castaigne and Rathery suggest that perchance certain renal disturbances now described as the result of reno-renal reflex nervous influences or as sympathetic nephritis are the outcome rather of auto-nephrotoxins.
(e) Tubercular or cystic disease of both kidneys may progress to the total destruction of all secreting tissue.

C. *The direct effect of lessened heart force.* When the aortic pressure sinks below 40 mm. Hg. the urinary secretion stops absolutely. So long as the blood pressure is above this height the secretion is more or less proportional to the pressure, and changes with the changes in this pressure.

D. *Trauma.*
(a) Direct paralyzing injury to both kidneys or to one kidney when the other is non-functionating.
(b) Rupture of the *kidney*, the *ureters*, or the *bladder* with extravasation into the tissues of all urine secreted. This must be included under the old definition of suppression of urine, but is not believed to belong to the subject at all.

E. *Anesthesia.* It would be very difficult to classify this etiologic factor more accurately, for the reason that we do not certainly know the exact manner in which these drugs act on the kidney. Kemp concludes that ether, while producing a rise in general arterial pressure, manifests a deleterious and specific influence in a lowered renal pressure and almost immediate diminished secretion, whereas chloroform, when producing a decrease in carotid pressure, exerts but an insignificant effect if any on the renal pressure or excretion. On the other hand, Gallezzi and Grillo maintain that the diminution of renal permeability is more marked when chloroform is used than when ether is administered, and they claim that this result renders any infectious disease with which the patient so anesthetised may be affected more severe.

PATHOLOGY.

A complete study of the pathologic lesions mentioned above as etiologic factors would be both impracticable and undesirable in the present paper. The pathology of those conditions enumerated under the heading of obstructive suppression is so well understood and so well described in all text-books of pathology that its recapitulation is considered unnecessary. The same may be said of some of the conditions included under the heading of non-obstructive suppression, yet it is this particular section of the subject which presents the perplexing questions, and hence it is this section which should receive most attention.

In view of the fact that we are dealing with alterations in the functional value of the specific parenchyma of the kidney, it is certainly true that we will find a physiologic basis to be the correct one on which to construct our pathologic and therapeutic superstructure.

PHYSIOLOGIC CONSIDERATIONS.

The kidney is a compound tubular gland in which the vascular apparatus is so arranged as to afford (*a*) the most favorable conditions for filtration of the liquid parts of the blood, and (*b*) the most favorable conditions for the elimination of the waste products of body metabolism by its specific excretory cells. The secretion of this gland is complex in its composition, contains most of the end products of the varied metabolism of the tissues and represents the most vital excretory product of the body. This secretion may be looked on as a solution of a great number of organic and inorganic substances in water.

The nerve supply of the kidney is vasomotor (vaso-constrictor and vaso-dilator) and secretory. The vessels of the kidney, like those of all parts of the body, are under the direct control of the central nervous system. The secretory nerves are not fully understood. The nerves are definite off-shoots from and an integral part of the vast abdominal sympathetic system, and are connected with the spinal cord through the anterior roots of the eleventh, twelfth and thirteenth dorsal nerves. These nerves enter the hilum of the kidney both as a plexus closely investing the renal artery and as fibers which run parallel to the vessels and can be traced as far as the cortex.

The secretion of urine consists of two distinct processes: (1) The secretion of water and salts, and (2) the elimination of urea and related bodies. The secretion of the waters and the inorganic salts undoubtedly takes place through the glomerulus. The excretion of urea and related bodies is believed to take place through the agency of the epithelial cells lining the convoluted tubules. These cells perform the function of secreting the specific nitrogenous elements of the urine, which are taken up into solution by the water which flows downward from the glomerulus and a completed urine is formed.

The secretion of water and inorganic salts seems to be largely, yet not entirely, a question of mechanical filtration or separation and to depend mainly on two factors.

(1) The difference of pressure between the blood in the glomerular capillaries and the urine in Bowman's capsule. The pressure in the tubule is practically *nil* under normal circumstances, so that the only changeable factor will be the blood pressure in the capillaries.

(2) The rapidity of the blood flow through the glomeruli. The more frequently the fluid is presented to the filter the more rapidly will the process go on.

The glomerular circulation may be affected in several ways. The pressure in the glomerular capillaries will be raised and the velocity of the blood increased:

(1) By a rise in the general blood pressure. This may be due to (*a*) increased force and frequency of the heart, (*b*) constriction of vascular areas in other parts of the body.

(2) By dilatation of the renal arterioles, the general blood pressure remaining constant.

(3) By obstructing the renal vein. In this case the velocity will be diminished.

The pressure and velocity in the glomerular capillaries will be diminished:

(1) By diminished general blood pressure, which may arise from a weakening or slowing of the heart beat, or from dilatation of vascular areas in other parts of the body.

(2) By constriction of the vessels in the kidney itself.

As has been stated above, a diminution of aortic pressure below 40 mm. Hg. results in an absolute cessation of secretion and variations in pressure above this point will be followed by corresponding variations in the amount of urine secreted.

It is to this vasomotor mechanism of the kidney that we must look for the regulation of the flow of blood through the kidney, hence for a rational explanation of variations in the secretion of urine.

Stimulation of the vaso-constrictor fibers causes contraction of the arteries of the kidney, a diminution in the size of the organ and a diminished secretion of urine. Stimulation of the vaso-dilators will have precisely the opposite effect. Both of these sets of fibers are probably brought into play under normal conditions by reflex stimulation, and thus serve to regulate the flow of blood through the kidney and thereby influence its functional activity.

It has been estimated that, in strong diuresis, 5.6 per cent. of the total quantity of blood sent out of the left heart in a minute may pass through the kidneys, although the combined weight of these organs makes only 0.56 per cent. of that of the body.

That the formation of the water of the urine is not entirely a question of filtration, however, would seem to be demonstrated by two experimental facts:

(1) Ligation of the renal vein raises the blood pressure in the glomerular capillaries almost to that of the

renal artery, yet the secretion of urine is promptly arrested.

(2) Ligation of the renal artery causes a complete arrest in the secretion of urine. Removal of this ligature after a few minutes restores at once a normal circulation and pressure of blood in the glomeruli, yet the secretion of urine is not re-established for one hour, and when it does return it contains albumin.

These facts have led Heidenhain to believe that the secretion of water depends on the active intervention of special secretory cells, and that any agent which interferes with the physiologic value of these epithelial cells covering the glomerulus will result in corresponding alterations in the amount and the quality of urine secreted. If such an explanation is correct we will find in this physiologic fact a most valuable aid to the explanation of degenerative suppression of urine. Furthermore, in those forms included under the head of venous congestion the direct causative factor may be a decreased secretory power or a decreased permeability of these cells, which has resulted from an insufficient blood supply.

It must be admitted, however, that physiologists are not yet agreed on all points concerned in the secretion of water, and it seems clear that at present we are not justified in asserting more than that the glomeruli control in some way the production of the water and salts of the secretion. The extent of the activity seems to be correlated with the quantity of blood flowing through the glomeruli.

It is a fact of some importance in the present study to note that the most important of the pathologic constituents of the urine, such as albumin, hemoglobin and sugar, seem to escape from the blood into the tubules through the glomerular epithelium.

The exact nature of the forces involved in the excretion of urea by the actively secreting cells of the convoluted tubules is not entirely understood. The normal stimulus to these cells seems to be the presence of urea and related substances in the blood and the rate of elimination will vary, under normal conditions, (*a*) with all variations in the percentage of urea in the blood, and (*b*) with the velocity of the blood flow through the capillaries. The elimination is not a simple act of diffusion, because the percentage of urea in the urine is greater than that in the blood. All that we can say is, that in some way the urea is selected from the blood and quickly transferred to the lumen of the tubule without alteration in chemic composition and without accumulation in the cell.

PATHOLOGIC CONSIDERATIONS.

Reflex Vasomotor Suppression of Urine.—The kidney parenchyma, it will be remembered, is enclosed within a firm unyielding capsule, analogous in every way to the capsule (sclera) of the eye and the bony casement of the brain. Under normal conditions a vaso-constriction diminishes the amount of blood entering this capsule, the kidney capillaries become anemic, and an amount of blood escapes through the veins exactly equal to that which enters. Under normal vaso-dilator action the amount of blood entering the closed sac is exceedingly increased, the entire organ increases in size, the capsule becomes tense, yet again the venous return is entirely efficient and carrys off an amount of blood exactly equal to that which enters. The blood circulation through the kidney is perfect in each instance, but the amount of blood flowing through the organ is widely different. The regulation of the exact amount of blood that shall flow through the kidney, it will be remembered, is the direct result of what may be called normal reflex stimulation.

Now, suppose we have an overpowering stimulation of any part of the abdominal nerve plexus, an overpowering reflex, such, for instance, as will result from a nephrectomy. One of three things may happen in the remaining kidney:

(1) There may be an intense stimulation of the vaso-constrictor nerves which will cause a temporary or persistent cessation of blood flow through the glomerulus.

(2) There may be a sudden paralysis of the vaso-constrictor nerve fibers and an increased flow of blood to the kidney; or there may be

(3) A marked stimulation of the vaso-dilator fibers and again an increase in the flow of blood into the kidney.

Intense Stimulation of the Vaso-constrictors.—This may be expected to cause a temporary or perhaps a somewhat continued arrest of blood flow into the kidney. The secretion of urine will immediately stop. The kidney will become anemic and the blood contained in the organ will flow off through the veins. Now, it has been demonstrated anatomically that the kidney receives a feeble anastomotic circulation through its capsule. Furthermore, it has been demonstrated that simple ligature of the renal artery will cause a condition of red infarct in the kidney, while the ligature of this artery, after the complete removal of the capsule, will result in a condition of white infarct. This means that after ligature of the renal artery blood flows through this anastomotic circulation into the kidney in sufficient quantity to engorge the vessels, yet under insufficient pressure to reestablish the circulation of the blood through the organ. A condition of red infarct results. When the capsule is removed, however, this anastomotic circulation is cut off and all blood left in the kidney drains off, leaving the capillaries empty and the tissues white.

Precisely the same conditions are presented when a sudden vaso-constriction closes the vessels of the kidney. The blood flow is arrested and this same anastomotic circulation engorges the capillaries and veins of the cortex. The endothelial cells in the walls of the capillaries and the small veins have suffered a degenerative change, however, because of the arrest of blood, and they permit the serum to leak out between the tubules. Now, since it is improbable that a complete obliteration of the arterioles by vaso-constriction could endure for a very extended period of time, let us see what would happen when these arterioles begin to open again. Blood is once more pumped into the kidney, but the venous return is seriously impeded by the lateral pressure of the exudate which has formed around and between the paralyzed veins and the tubules. The congestion of the vessels of the kidney becomes more intense with each heart beat, and a condition analogous to experimental ligature of the renal vein ultimately results. The blood flow through the kidney is stagnant, no urine is secreted, the capsule becomes over-distended and tense, the blood becomes highly venous and the kidney parenchyma suffers serious degeneration from insufficient oxygen and food supply. This is precisely the lesion found at the time of operation in the kidneys of the patient whose case has been reported in this paper.

Should the overpowering stimulation of the nervous mechanism of the kidney result in either a paralysis of the vaso-constrictors or a stimulation of the vaso-dilators, the effect on the circulation would be the same and the reasoning as to the ultimate effect on the kidney of both

would be precisely the same as that followed for the explanation of vaso-constriction suppression, except that the anastomotic circulation would probably play no part.

Degenerative Form.—It seems very easy to explain the degenerative form of suppression of urine on physiologic grounds if we give to the glomerular epithelium the pure secretory function that has been suggested. If the glomerular cells secrete the water then the correct performance of this function will be absolutely dependent on the anatomic and physiologic integrity of these cells, and any agent which causes serious degenerative changes in these cells will assuredly exert a corresponding influence on their secretory product. Such conclusions do not seem to be justified, however, by our present physiologic knowledge. At the same time there must be some connection between the normal secretion of the water of the urine and the integrity of the glomerular epithelium, be this a property of secretion or one of permeability, and it is believed that further experimental work in this direction will yield some definite results.

Lessened Heart Force.—The effect of a lessened heart force with a lowered aortic pressure finds its complete explanation in physiologic fact. The suppression of surgical shock will find its correct classification under this heading, and will be most correctly treated by directing the attention to the general circulation.

The pathologic findings in those kidneys examined by the author after death from suppression of urine have uniformly been slight. An intense congestion of all vessels in the cortex and a marked cloudy swelling of the parenchyma cells have always been present. The intertubular area has been uniformly widened and always filled either by capillaries and veins or by a fluid exudate. The most striking feature of the lesion has always been a complete injection of all vessels of the kidney by red blood cells. An exudate within the tubules has not been observed. It has so happened that all of the kidneys examined by the writer showed either no evidence of a chronic nephritis or so slight a change that this lesion could not be considered to be a predisposing cause. As has been stated, the kidneys, exposed in the case that has been reported, showed a most intense degree of venous congestion and a very high degree of tension within the capsule; when this tension was removed and a large amount of venous blood had drained off the cortex looked comparatively pale.

DIAGNOSIS.

The condition presented to the physician for diagnosis is an absence of the usual discharge of urine from the body. The first point that must be decided is the proper classification of the particular case under the heading of either the obstructive or the non-obstructive form of suppression of urine. The determination of this one point will call for the most thorough possible history, both as regards previous illness and the existing attack. This history must deal minutely with all symptoms referable to the functional value of the kidneys, and all preceding attacks of pain in the abdomen, the loin, the back or bladder must be investigated with a view to establishing a probability or a certain diagnosis of pre-existing parenchymatous or calculous disease of one or both kidneys. It is a well-known fact that most cases of total obstruction of urine from blocking of the ureter occur in individuals who have previously suffered a destructive lesion in one kidney. This previous disease in the destroyed kidney may be unknown to the patient, or he may have forgotten the slight symptoms that he suffered.

The physical examination of the patient must be equally thorough and equally complete. The passage of a catheter into the bladder will rule out urethral obstruction. A cystoscopic examination will determine the presence or absence of tumor of the bladder and may detect a calculus in the vesical opening of the ureter. Catheterization of the ureter or the introduction of the wax taper, as suggested by Kelly, will determine the patency of the ureters and may give positive evidence of the presence of stone.

If the ureters are patent we may consider that the diagnosis of a non-obstructive or true suppression of urine is established. It is not always possible to apply methods of precision to this degree, however, and a diagnosis must sometimes be made on the evidence furnished by abdominal palpation and the history of the patient.

The differential diagnosis of the various conditions referred to under the heading of obstructive suppression is not believed to belong to the present study and is well described elsewhere.

A differential diagnosis between those conditions included under the heading of true suppression of urine or non-obstructive suppression will usually be made from the history of the patient alone. It will usually be self-evident that the patient has ingested a poison, that he has suffered a strong reflex, that shock is present, that the heart's action is feeble or that an anesthetic has been given.

TREATMENT.

A discussion of treatment again divides itself naturally in accordance with the general division of the subject into the obstructive and the non-obstructive form.

The Obstructive Form.—The treatment of this form of suppression is always surgical, and is always directed to the re-establishment of efficient excretory channels or ducts. Such methods of treatment are well described in all text-books of operative surgery. Again, it must be stated that this section does not, in the opinion of the author, belong to the subject of suppression of urine.

The Non-obstructive Form.—The first thought that will come to the mind of the majority of practitioners of medicine in the presence of any form of suppression will be, what diuretic will act most promptly?

The mode of action of diuretics is not well understood. Without entering on a discussion of the subject it may be stated that the saline diuretics, such as urea, dextrose, sodium chlorid, potassium nitrate, potassium acetate, etc., produce an increased flow of blood through the kidney, hence an increased flow of urine, by reason of an hydremic plethora which they induce. The result of injecting these substances into the blood has been proven to be an active flow of water from the tissues into the blood. The blood, therefore, becomes diluted to an extent varying with the osmotic pressure of the substances injected. Caffein again seems to produce its diuretic effect by reason of its effect on the renal vessels. The effect of digitalis, in producing diuresis, is more complex, yet it seems probable that its action may be explained by its effect on the general circulation. It slows and strengthens the heart beat and at the same time constricts the smaller arteries of the body, so that the arterial pressure is raised. Therefore, its legitimate use in suppression of urine will be restricted to those cases of heart disease in which a feeble heart action, a lowered arterial and an increased venous pressure are the cause of an imperfect flow of blood through the kidney. Under such conditions digitalis will act as a powerful diuretic.

The Treatment of Vasomotor Suppression of Urine.—It has been demonstrated that the pathologic lesion in this condition is an intense venous congestion of kidney. The blood is stagnant, the venous return is progressively more and more impaired by lateral pressure, the kidney capsule is tensely overfilled, and blood is being continuously pumped into an already overfull organ. This kidney certainly needs depletion and those measures should be applied which will withdraw blood from it.

Diuretics may act favorably on such a kidney or they may be the very worst possible thing for it. The lesion is uniformly a greatly impeded venous return from the organ or a venous stasis. Now, if by increasing the arterial pressure behind this stagnant blood it can be forced on into the renal vein, then a diuretic will relieve the existing stasis and render conditions favorable to an absorption of any exudate that may be present. Such reasoning is followed in the treatment of pneumonia, and the heart receives more attention from the therapeutic standpoint than the lung itself. If, however, the obstructive lesion in the veins has become so marked that this piling up of pressure from behind can not overcome it, then these same drugs only intensify the lesion by sending more and more blood to the organ.

It seems to the writer, therefore, that the course pursued in the treatment of the reported case was correct. Fresh infusion of digitalis was first given with a view to strengthening the heart, equalizing the circulation and restoring vasomotor tone. This failing it was deemed wise to establish a high degree of hydremic plethora by the most prompt possible means. Sixty ounces of normal salt solution were therefore injected into the veins every six hours for four doses. This measure also failed in this particular case, and in the light of subsequent history both measures probably did her kidneys more harm than good. Nevertheless, it is believed that these measures are correct and that they will serve to re-establish the flow of blood through the kidney, hence the flow of urine, in quite a percentage of very early cases.

Depleting agencies will occupy a position of high importance in the treatment. These measures are applied for two reasons: (1) For the purpose of withdrawing blood from the kidney; (2) for the purpose of removing urea from the blood. To this end cupping of the loins, free purgation and sweating with pilocarpin and hot air are to be strongly recommended. Large hot irrigations of the colon with salt solution may be tried.

OPERATIVE TREATMENT.

Should the above-named measures fail to bring about the desired result with promptness, we must conclude that the venous stasis in the kidney has attained a high degree. The operative treatment of decapsulation should then be applied. This treatment seems to the writer to meet the conditions exactly. The high degree of tension is relieved, the veins are emptied by blood letting and conditions are rendered favorable for both the re-establishment of the circulation and for the absorption of exudate. It is possible, in addition, that the massage of the kidney may in some way exert a favorable influence on its nervous mechanism. Suffice it to say that the prompt and perfect result in the case reported must be taken as definite evidence that decapsulation is a therapeutic agent of great value.

The suppression of urine that occurs in conditions of shock should be considered in the light of a symptom. Absolute quiet, external heat, elevation of the feet, intravenous injection of salt solution and strychnin will be found to be the main elements in the treatment.

Degenerative suppression of urine will require a somewhat different reasoning. The element of prime importance in the treatment will be the withdrawal of the poisonous agent. A degenerated cell or a degenerated organ is one in which the nutritional supply, the metabolic process or the process of excretion are at fault. Therefore, every measure should be adopted that will restore to the kidney a large amount of good blood and which will keep this blood in active circulation. Drugs will be of some value and salt solution will serve the double purpose of filling the vessels and of diluting a contained poison.

In conclusion, the statement will be repeated that the above discussion of the condition of suppression of urine is presented in a purely suggestive light, and it is hoped that it may lead to the more thorough investigation of some of the obscure points in etiology, pathology and treatment.

The discussion on the papers of Drs. Whitacre, Guthrie and Ferguson will follow the paper of Dr. Ferguson in a subsequent issue.

CONTRIBUTION TO THE SURGERY OF GASTRIC ULCER.*

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The literature on the surgical treatment of ulcer of the stomach has, during the last few years, grown to vast proportions and the subject has been most ably and thoroughly presented. It is not my intention to attempt a résumé of this literature, nor to take up the subject of gastric ulcer in detail.

There is, however, one of the frequent complications or sequelæ of chronic ulcer of the stomach which my experience indicates will bear still further discussion than it has been generally accorded. I refer to adhesions of the stomach to a neighboring viscus or the abdominal wall, and this paper will be confined to a brief consideration of the symtomology, diagnosis and treatment of this condition.

Enough has been said and written concerning the surgical treatment of alarming hemorrhage, perforation and dilatation of the stomach resulting from ulceration of the organ, to establish quite firmly good and sufficient rules for guidance as to our management of these dangerous and distressing complications and we find these rules very generally accepted and applied.

The adhesion of the stomach to a neighboring organ or to the abdominal wall may occasion symptoms quite as distressing as those due to pyloric stenosis and in many instances really jeopardize the life of the patient.

It is the purpose of this article to consider only those cases of adhesion the result of gastric ulcer. That the condition may be set up by extension of the inflammatory process from an adjacent viscus as the pancreas or the gall bladder is true and the symptoms and indications for treatment are very similar.

Perigastric adhesions as sequelæ of gastric ulcer are due to the gradual involvement of the serous coat, by the extension of the ulcerative process, with a localized peritonitis as the result which secures the adhesion of the infected area to that organ or organs with which it comes in contact. In 226 cases of chronic ulcer of the stomach, collected by Fenwick, postmortem examina-

* Read at the Fifty-fourth Annual Session of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. H. O. Walker, A. J. Ochsner and DeForest Willard.

tion revealed the presence of adhesions in 96, or 42.5 per cent.

In 123 cases of ulcer with adhesions, collected by the same authority, the pancreas was involved in 49, the liver in 23, the liver and pancreas in 10, the colon in 7, the liver and colon in 4, the spleen in 2, the mesentery in 3, and three or more organs, including, in addition to the above, the omentum, diaphragm, abdominal wall and kidney, in 15. I shall not attempt to discuss the cases where perforation has occurred with a resulting localized abscess, as the symptoms of this condition are usually acute, the septic predominating over those of disturbed function.

It is thus readily seen that the formation of adhesions between the stomach and the other abdominal organs is of such frequent occurrence in cases of chronic ulcer as to vest the subject with considerable importance.

The distribution of these adhesions is readily understood from the fact that about 80 per cent. of all gastric ulcers are situated on the posterior surface of the stomach or at the pylorus.

This, of course, brings the larger number more or less intimately in contact with the liver and pancreas and it is to one or more of these organs that we find the adhesion has most frequently occurred. As would be expected, the next most common point for their formation is the transverse colon. Adhesions to the abdominal wall, mesentery, spleen and kidney are relatively uncommon.

The area of the stomach wall involved in the inflammatory process and the density of the resulting adhesion or adhesions are subject to wide variation. We may find a small surface only which has become so fixed, with a resulting conical prolongation of the stomach in that direction or the amount adherent may be as large as the hand. Indeed, in those rare cases of plastic perigastritis the entire surface of the organ may be involved in the inflammatory process and by general widespread adhesions which so compress its walls and diminish its size as to practically put it out of commission. The adhesions may be, and usually are, very dense or, in a few instances, easily separable. In cases where they have been present for a long time and the area of the serosa involved is small, they may have lengthened out into long peritoneal bands, much resembling those found after ventro-suspension of the uterus. In such cases the normal mobility of the stomach may have been restored and the annoying symptoms spontaneously disappear.

SYMPTOMS.

The symptoms due to perigastric adhesions are often very distressing and too frequently misinterpreted. In the milder cases, where the area of the stomach wall involved is small and the adhesions are not put much on the stretch, there may be present, but vague and indefinite, digestive symptoms marked by eructations of gas and even fluid, possibly pain, and a general feeling of gastric unrest.

The symptoms, however, vary in importance and intensity with the portion of the stomach wall involved in the adhesions. If they are at or near the pylorus and seriously interfere with stomach drainage, very extreme disturbances may result. These patients will present symptoms analogous to those accompanying pyloric stenosis, i. e., dilatation of the stomach, eructation of gas and fluid and vomiting, which, in milder cases, may occur irregularly, but in the more severe class soon follows the ingestion of food and may be so frequent and excessive as to seriously endanger life through malnutrition.

Pain is usually present in these cases and in those subject to frequent vomiting is often most intense and distressing. These patients present signs of digestive disturbances that are more or less constant and can not be relieved by ordinary methods of treatment, diet, regulation of mode of living, etc., and in those in whom the functional activity of the stomach is seriously impaired by the adhesions we find a progressive loss of weight, even extreme emaciation, and gradually increasing weakness, terminating in death from starvation and exhaustion.

DIAGNOSIS.

The diagnosis of perigastric adhesions, while presenting many difficulties, should be more frequently made, and in some cases is comparatively easy. Probably those cases will be more easily recognized where the adhesion has formed with the anterior abdominal wall. If the portion of the stomach wall involved is at a point remote from the pylorus the functional disturbance will be slight and marked chiefly by pain while the stomach digestion is at its height. Pressure over this region will elicit tenderness more or less sharply localized, which subsequent examinations will show to be constant at this point. In some patients with thin abdominal walls an area of thickening or induration may be made out.

When the pyloric end of the stomach participates in the adhesion the symptoms are usually very pronounced and may closely resemble those of pyloric stenosis. In other words, they are those resulting from dilatation of the stomach. In these patients the distress is most marked at a time corresponding to the last stage of gastric digestion. Pain appears at this time, which may soon disappear or may last for hours, and is found to exist in the right hypochondriac region. During the paroxysm the patient can bear no pressure at this point, and I have known instances where the clothing about the upper abdomen, corset, waist bands, etc., was habitually removed or loosened soon after eating to secure relief from pressure. Vomiting in these cases is an almost constant symptom and may become so constant as to actually threaten the sufferer's life, as is illustrated in Case 1. As time elapses and the dilatation of the stomach increases, owing to impaired drainage, the classical symptoms of that condition, which need not be described to you, become more and more pronounced until the condition of the sufferer is really pitiable. Palpation may in these also reveal, at the point of greatest tenderness, an area of induration. This induration may be marked and easily felt, as in Case 1, or it may be very indistinct or not demonstrable at all.

In those cases where the adhesion exists between the lesser curvature and the under surface of the left lobe of the liver the symptoms are described by Fenwick as follows:

> The chief result of the adhesion is to prevent the downward displacement and forward rotation of the stomach which normally follow the ingestion of food and to impede the contractions of its longitudinal and circular muscular fibers. This interference with the motorial functions of the organ is probably responsible for the sense of fulness and discomfort after meals, of which complaint is so often made, and for the flatulence and acidity which ensue from the use of those articles of diet that are difficult of solution or are prone to undergo fermentation.
>
> It is also to be observed that in many cases of this description the patient experiences a constant dragging pain in the epigastrium or right side of the chest, whenever he indulges in physical exertion after meals or suffers from anxiety or excite-

ment. The fact that rest in the recumbent posture or the application of an elastic belt to support the stomach affords relief appears to indicate that the pain is due to a mechanical strain on the adhesions caused by the weight of the organ or by violent contractions of its walls.

In Case 3 of the series here reported the patient, who was a carpet layer, noticed that the pain and discomfort was much augmented whenever he got down on his hands and knees to drive tacks in a carpet, and he had to give up this kind of work. The operation revealed the lesser curvature of the stomach adherent to the under surface of the left lobe of the liver, and it may readily be seen that the position above described would increase the dragging on the fixed point. I have since employed this posture as a routine measure in the examination of patients suspected of having perigastric adhesions and it has proven of considerable value as a diagnostic aid. If the adhesion is to the anterior abdominal wall, on the patient's assuming the hands and knees position the pain and sense of dragging will be relieved. If the adhesion exists between the stomach and the liver or pancreas these symptoms are much augmented.

An adhesion existing between the pylorus and the liver presents symptoms closely resembling those described when discussing the adhesion of the pyloric end of the stomach to the abdominal wall. Dilatation, with its distressing symptom complex, appears early and the functional disturbance steadily increases. In these cases the pain is a most variable symptom as to location. In Case 2 the patient complained of almost constant pain immediately under the right nipple. The pain may be most prominent immediately under the ribs on the right side of the chest, radiating from this locality to the right infrascapular region. Deep pressure over the right hypochondrium will usually reveal an area of much tenderness.

If, as frequently occurs, the pyloric end of the stomach is adherent to the gall bladder, interfering by traction on that viscus or its ducts with drainage, we may have added to the symptoms above mentioned those common to disturbance of gall-bladder function. Indeed, the signs may point more emphatically towards gall-bladder disease than to gastric disturbance, as in Case 4, when a diagnosis of cholecystitis having been made, the operation revealed an adhesion between the pylorus and the gall bladder due to a chronic gastric ulcer, the separation of which without opening the gall bladder was followed by complete subsidence of the troublesome symptoms.

In very thin patients it may be possible by palpation to feel a hardened area over the right lobe of the liver if it projects, as it frequently does in such cases, below the ribs.

Adhesions occurring between the stomach and colon owing to the mobility of the structures involved, may occasion few troublesome symptoms. If the pylorus should be concerned in the adhesion to the extent of interference with stomach drainage the usual signs of that condition would be manifest.

I have seen but one case of adhesion of the stomach to the colon, and in that instance the patient complained more of symptoms referable to the bowel than to the stomach. Operation in this instance, Case 6, revealed an adhesion between the greater curvature and the transverse colon which, when the stomach was empty, exercised sufficient traction on the colon to produce marked kinking.

The diagnosis of adhesions between the stomach and the pancreas presents many difficulties and may usually be only surmised by the existence of the general symptoms of such adhesions and the acceleration of pain and functional disturbance when the patient assumes the hands and knees or knee chest posture, which will increase the dragging as the stomach pulls on the fixed point.

In patients suspected of having perigastric adhesions the following considerations are of value:

1. The persistence of troublesome symptoms despite careful dietetic and hygienic regulations.

2. Previous history pointing to chronic ulcer of the stomach.

3. Evidence pointing to the occurrence of a localized peritonitis during the ulcerative period.

4. The fact that change of posture may greatly modify the pain. The hands and knees position increasing the distress in adhesions to the liver and pancreas and relieving that due to adhesion to the abdominal wall. The recumbent posture relieving that due to adhesion to the liver and pancreas and increasing it in adhesion to the abdominal wall.

5. Tight bandaging may ease the distressing symptoms, by relieving tension of the adherent surfaces.

6. The presence of a more or less fixed point of tenderness.

7. The detection of an area of increased resistance or induration.

8. The employment of artificial distension of the stomach for purposes of examination. This will in some cases reveal more or less distortion of the organ and may, in cases of adhesion of the liver, render the adherent area more accessible to palpation. For this purpose the method advocated by Mayo, who uses the stomach tube and the bulb of a Davidson syringe, inflating the stomach with air, will be found most satisfactory.

9. The symptoms and physical signs of gastric dilatation which, when due to perigastric adhesions, come on more suddenly and are accompanied by more pain than when occasioned by cicatrization.

The treatment of perigastric adhesions must be surgical if permanent relief is hoped for.

It is true that in many cases where the adherent area is large and the adhesions very dense, as is frequently the case when the liver and pancreas are involved, even surgery is unable to offer relief, but when the adhesion between the stomach and the liver is not too extensive it may be separated and the patient cured. Adhesions to the pancreas, though presenting many difficulties to operative interference, may, in some instances, be successfully separated. In those cases where the pylorus is adherent to the liver, gall bladder or abdominal wall, or where the adhesion exists between the stomach and the colon, brilliant results may be secured by surgical treatment.

As the condition of many of these patients is deplorable, an exploratory laparotomy should be made unless the symptoms point unmistakably to the existence of adhesions so extensive that their separation is out of the question. Operation in any of these cases will, of necessity, be often of an exploratory nature, as an exact diagnosis of the condition is usually impossible. If, when the abdomen is opened, the case is found to be inoperable, so far as the separation of the adhesions is concerned, some relief may be afforded by making a gastroenterostomy at the most dependent portion of the stomach. If it is decided that the adherent surfaces may be separated safely, this is done in the usual manner. If, during the separation of the adhesions, the wall of

the stomach or the adherent hollow viscus has been weakened it must be infolded with Lembert sutures. If the separation leaves large raw surfaces the danger of adhesions again forming may be lessened by covering these areas with omentum or Cargile membrane. If dilatation of the stomach is present a gastroenterostomy should be made whether the adhesions are divided or not. Frequently the operation may present many difficulties and again it may be extremely simple. It has, in my experience, proven, on the whole, a very satisfactory procedure to patient and surgeon alike, in evidence of which statement I submit brief histories of seven cases.

These are all cases of perigastric adhesions due to chronic ulcer.

I have not included in this report those cases so frequently encountered of adhesion between the stomach and an inflamed gall bladder, where the gall-bladder symptoms predominate, except in one instance where the diagnosis of gallstones was made and an adhesion between the stomach and an otherwise healthy gall bladder was found.

CASE 1.—E. J., a female, aged 32 years. She complained of very acute abdominal pain coming on soon after eating, which was frequently attended with vomiting. Coughing, sneezing, etc., were attended by the most excruciating pain. She had been constantly under treatment for one year, her ailment being diagnosed as dyspepsia, and was almost discouraged concerning her condition. Owing to the difficulty with which food was retained in the stomach, she was extremely emaciated. An examination of the abdomen revealed, on palpation, a tender indurated spot about one-half inch above and the same distance to the left of the umbilicus. This, together with the symptoms above enumerated, led to the diagnosis of an adhesion between the stomach and the abdominal wall, with, possibly, the formation of an abscess. The abdomen was opened and the adhesion existing between the anterior surface of the stomach and the abdominal wall was readily found.

This was separated without difficulty. No pus was present and the stomach wall at this point was found to be intact, the ulcer having apparently healed.

The ulcerated area, however, was folded in and retained by close suturing. The troublesome symptoms immediately disappeared and, fifteen months after operation, had not recurred. The patient rapidly regained her lost weight, and has since been in perfect health.

CASE 2.—Male, aged 24. Had been treated three years for gradually increasing symptoms of digestive disturbance. These at first consisted of an uncomfortable sense of fulness after eating, which persisted for some time. Soon he was troubled with eructation of gas and fluid and then with frequent vomiting, which would appear an hour after eating. No history pointing unmistakably to ulcer of the stomach, but at one time had been quite sick for two weeks with symptoms of peritonitis. At the present time all symptoms are much aggravated. Soon after taking food he has severe pain in left side which seems more intense under right nipple. Vomiting soon follows and after emptying the stomach the distress gradually subsides. Has lost much weight and is very much concerned as to his condition. Is ravenously hungry, yet fears to eat. Examination reveals a very tender spot just to the right of the median line under free edge of ribs. At this point an obscure sense of increased resistance is made out by deep palpation Distension of the stomach with air (Mayo's method) brings on at once all the symptoms of pain and gastric distress and reveals the fact that the organ is much dilated, the lower border being two inches below the umbilicus.

The tender spot above referred to is now so sore that he can scarcely bear the slightest pressure on it. The history, together with the physical signs, led to the provisional diagnosis of adhesions existing between the pyloric end of the stomach and the liver and laparotomy was advised.

At the operation the pylorus was found firmly adherent to the right lobe of the liver, about one square inch of tissue being involved in the adhesion. Separation of the tissue was effected without difficulty and an anterior gastroenterostomy made at the most dependent part of the stomach.

The raw surface of the pylorus was covered with omentum. Relief from all troublesome symptoms was immediate and complete, the young man rapidly regaining his former weight and strength.

CASE 3.—Male, aged 37. History pointing to existence of gastric ulcer six years before. For the last few months he had pain after eating, eructations of gas and finally vomiting, which now occurs several times daily. Has lost weight and strength and had to abandon his vocation, that of carpet laying, as the hands and knees posture assumed by him at his work greatly increased the pain. Examination revealed a very tender area exactly in the median line and just at the end of the sternum. Says that he vomits a few minutes after taking food, frequently ejecting all that he has eaten. Is very despondent and threatens suicide unless relieved. On taking the hands and knees position he gives every evidence of suffering intense pain, which is immediately relieved, but not abolished, when he lies on his back. Says that at times if he will lie down immediately after eating that the distressing symptoms may be very much lessened in severity and that he may not vomit at all. He refers the pain to the entire upper abdomen, and says that at its height it extends across from side to side just under the free edge of the ribs.

An exploratory laparotomy revealed extensive adhesions between the lesser curvature of the stomach and the under surface of the left lobe of the liver, involving a surface about two inches in diameter. These adhesions were separated with great difficulty and several vessels required ligation.

The large raw surfaces remaining, both on the stomach and the liver, were covered with Cargile membrane. Shock was pronounced and only overcome by most vigorous measures. To my great gratification readhesion of the denuded surfaces did not take place and recovery was rapid and absolute.

CASE 4.—Young woman, aged 23. History of recurrent attacks of pain and soreness in upper abdomen for the last four years. Usually came on an hour or two after eating, and lasted from two or three hours to several days. Intervals between the attacks constantly growing shorter. Pain and sense of burning extending from right hypochondrium across to the left side and up to right shoulder blade. Vomiting occurred frequently, but not always present. Pressure of clothing could not be endured during the paroxysm. No history of hematemesis. Examination revealed exquisite tenderness over the gall bladder. The recurrent nature of the trouble, the character of the pain and the location of the tender area led to a diagnosis of gallstones.

Operation revealed an adhesion between the gall bladder and the pylorus, which, when separated, was seen to be due to a chronic gastric ulcer.

The gall bladder was apparently perfectly healthy, no stones could be felt in it or the ducts and the operation was concluded with the separation of the adhesion, and in folding the ulcerated area of the pylorus with Lembert sutures, as the stomach wall at this point appeared very thin.

Complete recovery rapidly ensued, thus adding unmistakable proof that the diagnosis of gall-bladder disease was a mistaken one.

CASE 5.—Married woman, aged 21. History of chronic ulcer of the stomach four years previously. Lately has been suffering extreme pain after eating, which was located in the right hypochondrium and extending to the right chest. Vomiting was of frequent occurrence, coming on soon after eating and she was rapidly losing weight. The entire upper abdomen seemed tender to pressure and she had worn no corset or tight skirts for months.

As long as she remained in the recumbent position the pain and vomiting was less severe and some days she would suffer very little. Exercise greatly aggravated all symptoms.

Operation revealed adhesions between the lesser curvature, just above the pylorus and the liver. These adhesions were very firm and extended over an area half as large as the hand. Their division was quite difficult, and several times I thought I had better give up the attempt. It was finally accomplished and the large raw surfaces covered with omentum and Cargile membrane. The patient stood the operation well and made a good operative recovery, but the troublesome symptoms rapidly recurred, evidently because of the reformation of the adhesions. Refusing further operative interference, the case passed from observation.

A blunder was committed in this case by persisting in separating these wide and dense adhesions and by omitting to make a gastroenterostomy. Confronted again by such conditions, I should perform a gastroenterostomy and let the adhesions alone.

CASE 6.—Married woman, aged 44. History pointing to ulcer of the stomach several years before. For the past three or four years has been troubled with vague and indefinite abdominal symptoms. These were apt to appear three or four hours after taking food and, to use her own description, "the right side would feel as if it were going to burst, while the left side felt flat." Pain extended at this time from the ribs to the groin on the right side and across the upper limits of the abdomen and was colicky in character. During the paroxysm distension of the abdomen was quite marked.

Vomiting might occur, but was usually absent. After a time varying from one to three hours, the symptoms would gradually subside, only to reappear following the next meal. Strict adherence to a liquid diet would often grant comparative freedom from the attacks for days at a time, but the taking of solids was certain to be followed by distress. Growing tired of the restricted diet, the patient asked if an operation would not give her relief.

An exploratory laparotomy disclosed an adhesion between the greater curvature of the stomach and the transverse colon which, when the stomach was empty, so drew on the latter as to produce a decided "kinking" of the gut which was sufficiently acute to interfere with the ready passage of its contents.

This adhesion was easily separated and the surfaces participating in it were covered with omentum. Recovery was uneventful and has remained complete.

CASE 7.—Male, aged 35. No definite history of ulcer. For several months had been suffering with symptoms of digestive disturbance manifested at first by eructations of gas and fluid and some abdominal tenderness. Soon began to vomit at irregular intervals and at the present time vomiting occurs several times daily and is accompanied by severe dragging pain over the upper abdomen. Is steadily losing weight and has had to entirely abandon business. Examination reveals much tenderness in right hypochondrium and an area of increased resistance above and to the right of the umbilicus. Distension of the stomach with air shows it to be much dilated and its movements may be seen through the thin abdominal wall.

All the symptoms are aggravated on his assuming the "hands and knees" position. Operation revealed adhesions between the pylorus and the liver, the pyloric end of the stomach being held firmly against the under surface of the liver while the stomach, enormously dilated, extended far below the umbilicus. The adhesion was separated with no especial difficulty and a gastroenterostomy was made. Much improvement followed the operation and, although restoration of function was not perfect, the patient having occasional attacks of pain, he had been able to resume active business.

A study of these cases would seem to warrant the following conclusions:

1. Perigastric adhesions as sequelæ of chronic ulcer of the stomach are not uncommon.

2. Their existence should be suspected and even positively diagnosed more frequently than has been the case.

3. In many such cases the relief afforded by the operation is absolute and may be secured in no other manner.

4. The operation is often an extremely simple one.

5. If the adhesion involves surfaces so extensive that its recurrence must be inevitable, relief may be best secured by a gastroenterostomy allowing the adhesions to remain.

6. The use of omental grafts or Cargile membrane is of value in preventing the readhesion of the separated surfaces.

THE SURGICAL CONCEPTION OF PYLORIC OBSTRUCTION.*

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Until within the past few years pyloric obstruction was regarded as due either to cancer so situated and so advanced as to render its removal impossible or excessively hazardous, or to a non-malignant pathology usually so obscure and so difficult to diagnose as to make any attempt at surgical interference uncertain and unjustifiable. Hence, surgeons were rarely encouraged to seriously consider operative procedures in stenosis of the pyloric orifice, and the victims of this condition were, with a few exceptions, permitted to die or to drift into chronic invalidism without a single rational effort being made to remove or correct the causative pathology.

It has been only within the past decade that the advances made in the surgery of the upper half of the abdomen and of the stomach in particular have inspired us with a new confidence, and given us a much clearer and more practical idea of this causative pathology, suggested a means of diagnosing it earlier, and indicated plainly the only measures we can reasonably rely on to prolong the lives of these patients or restore them to health.

Those who have kept in touch with these advances and thoughtfully compared their own clinical experience with that of the comparatively few workers in this field will, I believe, agree that the palliative, expectant treatment of the past must eventually give way to the more promising, prompt, rational measures suggested by the surgical conception of pyloric obstruction.

These experiences, as I interpret them, teach us that in at least 95 per cent. of all cases this obstruction is due either to cancer, ulcer or inflammatory adhesions, viz., to a pathology that at no time and under no conditions can be removed or corrected by any combination of medicinal or dietetic measures, but which in every instance at some stage of its progress affords an opportune time for removal or favorable modification by appropriate operative procedures.

We have learned, too, that the fears and apprehensions of excessive danger that so long retained our surgical endeavors in the upper half of the abdomen were greatly exaggerated and that the surgery of this part of the peritoneal cavity is not attended by unusual risks if we choose an opportune time for operating, while the morbid process is yet circumscribed and before the recuperative and reparative powers of the patient are exhausted. Indeed, it has been shown that the stomach will bear almost any kind of surgery with comparative safety to the patient if the operator is clean, the patient is in good condition, and the small intestines are not unnecessarily exposed or subjected to trauma.

* Read at the Fifty-fourth Annual Session of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. H. O. Walker, A. J. Ochsner and DeForest Willard.

Instructed by recent operating-room observations, we have modified many of our old ideas of pathology that were formed in the dead house. Not a few of these changes have an important surgical bearing. For example, it has been found that cancer of the pylorus, although situated in a part of the lymphatic system, is singularly slow to extend to nearby glands and, consequently, often offers really a better opportunity for complete removal than cancer of the uterus or breast. (I think it must be very rare, however, to find malignant disease so far advanced as to demand a complete gastrectomy, except the glandular involvement be such as to contraindicate any extensive operation.)

We know that gastric ulcer is rarely single and, while one may be able to diagnose and, in the course of the operation, to locate the particular ulcer that produces the symptoms and, perhaps, be tempted to excise it, it is safer to conclude that there may be one, two or three smaller ulcers so obscure as to escape detection or prevent excision. For this reason gastroenterostomy should usually be the preferred surgical treatment for gastric ulcers.

The fact that nearly three-fourths of the present mortality and sufferings from pyloric cancer and ulcer are due to the occlusion of the pyloric orifice must be regarded as a strong plea for the surgeon to relieve the obstructive symptoms, even when it is apparent that the perfect removal of the pathology is impossible or impracticable.

It seems highly probable that neither cancer, ulcer nor inflammatory adhesions are, as a rule, separate and distinct entities in this pathology, but are not infrequently associated as successive factors in the morbid process that results in organic stricture of the pylorus. It is certainly fair to presume that cancer in this region, as in the lip, cervix, nipple and elsewhere, finds its preferred, if not its essential, starting point in cicatricial tissue; and here this cicatricial tissue is most likely to be found about bands of adhesions and the healing of ulcers.

It has been customary in the past to regard blood dyscrasia as the chief cause of gastric ulcer; but I am inclined to believe that this view has been accepted more on account of its being the only available one than because of its sound pathologic basis. To me it seems more consistent to assume that the etiologic factors of gastric ulcer are not different from those of ulcer in other parts of the body, except as modified by local conditions, the anatomic relations and the physiologic functions of the stomach, and that in most instances the necrotic process is preceded by a local circulatory disturbance or lowered vitality of the part, and that in the stomach such degenerative changes are hastened and intensified by the well-known digestive effects of the gastric juice on devitalized tissue. The local circulatory disturbance, the locus minoris resistentiæ, is provided here whenever omental attachments or peritoneal adhesions drag, bind or compress any part of the stomach in such a manner as to impair or abolish its physiologic mobility or interfere with its normal blood supply.

That such omental attachments and peritoneal adhesions often occur with any nearby or remote intraperitoneal inflammation will not be questioned by any operator familiar with gall-bladder, appendiceal and tubal inflammations, and is able to recall how almost invariably the omentum is involved and peritoneal adhesions formed.

Just what proportion of cancers are preceded by gastric ulcers and just what proportion of ulcers are caused by peritoneal bands of adhesions or omental attachments, no one as yet may presume to decide; but the fact that there is a very intimate relationship between these causative factors, with an inflammatory lesion at the one extreme and malignant disease at the other, should be kept in mind in taking the history, in making the differential diagnoses and in deciding on the treatment of each case.

I am quite sure that in a number of instances I have been able from the history to trace the successive steps of the pathologic process from an old inflammatory lesion (appendiceal, gall bladder or tubal) to a cancer of the pylorus or to a gastric ulcer; and within the past two months I have operated on two cases where such conclusions were suggested by the history and afterwards verified on the operating table. In one case, the obstruction was due to cicatricial contraction following an ulcer. Some years before, the patient had suffered from a well-marked attack of appendicitis lasting nine weeks. After a recurrent attack symptoms of pyloric obstruction appeared which in time became so aggravated as to lead him to seek surgical aid. The appendiceal mass, the omental attachment, the ulcer, etc., were demonstrated in the course of the operation. The history of the second case was typical of chronic ulcer with partial occlusion for a period of three years. Since November, 1902, the symptoms had rapidly become more serious and indicative of malignancy. The operation demonstrated the existence of a cancer of the pylorus freely movable and with but little glandular involvement. In this connection is it not logical to believe that the hemorrhage that so often occurs a number of days after gall-bladder operations may be due to ulceration from the above causes rather than from some obscure blood dyscrasia?

This explanation of the etiology of gastric ulcer, which I have submitted for your consideration, not only appears to harmonize with the general teachings of pathology, our operating-room findings and clinical experience, but is apparently supported by the results of a series of experiments on animals which I have recently undertaken, the details of which I hope to make the subject of a future paper.

This, in brief, is an outline of the pathology we may be facing whenever in our consulting room or at the bedside we are confronted by a patient suffering from any serious chronic disease of the stomach. And since the life and health of the possessors of this pathology depend as much on our promptness in recognizing it as on our judgment and skill in correcting it, the first and most important step toward the discharge of our duty to these patients is to hold ourselves prepared and on the alert to detect any early warning symptoms, and to spare no pains in our efforts to look beyond the symptoms to the morbid conditions that produce them.

Undoubtedly in the past we all have been inclined to permit the early stages of organic stricture of the pylorus to escape our observation. So long as an early and positive diagnosis served only to give an early and positive assurance of impending death or a life of invalidism, neither physicians nor patients were enthusiastic in securing convincing clinical evidence. The gathering of testimony that can only serve to deprive the patient of the last ray of hope seldom engages the best efforts of the medical profession.

But now as surgeons are beginning to demonstrate to physicians that we have good substantial grounds for our faith in the efficiency of surgery if employed early, we may reasonably hope to win that which at the present

time we most need—the confidence of the patient and the co-operation of his first counselor, the internist.

GENERAL RULES FOR DIAGNOSIS.

Time will not permit our dwelling on the symptomatology of pyloric obstruction, and I shall only venture to call your attention to a few general rules that I have found helpful to me in systematizing my examinations and in aiding me to reach an early decision.

First.—Suspect all cases of serious chronic disease of the stomach to be suffering from pyloric obstruction and subject each to a rigid investigation unless the symptoms are plainly due to other causes.

Second.—Since the history is always our earliest and often our most significant and sometimes our only clue, it should be reviewed and studied in every case with scrupulous care, due attention being given to the age and habits of the patient, date of commencement of present illness, location and character of pain, loss of weight, vomiting of blood or undigested food, the length of time after eating the vomiting and pain occur, attaching especial weight to any history of previous attacks of abdominal pain or distress that might indicate a local or general peritonitis.

Third.—Note the appearance of the patient, whether cachectic, jaundiced, anemic or well nourished.

Fourth.—Locate the point of greatest tenderness, determine presence or absence of tumor, note contour of abdomen, and, most important of all, mark out the boundaries of the stomach when distended, for marked dilatation is almost pathognomonic of obstruction.

Fifth.—Examination of the stomach contents after a test meal, including the test for hydrochloric acid, may furnish very significant but never positive evidence as to the malignancy or non-malignancy.

Sixth.—The presence of a tumor with or without glandular enlargements is strongly suggestive but not absolute proof of malignancy.

Seventh.—Remember that in spite of the most painstaking investigation a certain proportion of cases will remain obscure if we employ only the ordinary means of diagnosis. In such cases, when malignant disease is suspected, or without such suspicion, if the obstructive symptoms be marked, or the patient is greatly distressed, or his general health and strength are being surely undermined, we have no right to postpone an exploratory incision. For, at the hands of an experienced operator, this is a safe procedure and always gives positive information that is obtainable in no other way. (I am convinced that each year many lives are sacrificed because of our hesitancy or delay in employing this important diagnostic measure.) The fact that pyloric obstruction is always a surgical disease does not mean that all cases are to be invariably subjected to operation. The same conditions that demand an exploratory incision usually require the surgical treatment, for with such symptoms, if there be no organic stricture, there is likely to be angulation of the pylorus due to adhesions, or spasmodic stricture due to ulcer, and neither are susceptible to any non-surgical treatment.

OBJECTS OF SURGICAL TREATMENT.

The modern surgical treatment of pyloric obstruction includes two objects:

First.—The establishing of a communication between the stomach and the duodenum or the jejunum.

Second.—The removal of the causative pathology.

The first is imperative in every instance, and under favorable conditions is attended by a moderate risk. The second is always desirable, but not always advisable; for the character and extent of the pathology together with the condition of the patient may not justify us in attempting the second object.

Many ingenious operations have been proposed and practiced for the accomplishment of these two objects. I am impressed, however, that it is a mistake to enter the operating room with the mind over-burdened and perhaps confused with the details of many complicated procedures, and I am sure that better results would be obtained if we, especially those of us who operate infrequently, would strive to perfect our skill and dexterity in the use of a few of the simplest measures that promise to accomplish the objects desired.

SOURCES OF ERROR.

Four other sources of error deserve mention:

First.—Attempting to do too much. The welfare of the patient as well as the best interests of surgery sometimes contraindicate an ideal operation. After doing a gastroenterostomy, it may be even advisable under certain conditions to postpone for a time the removal or correction of the pathology.

Second.—Selecting an operation that requires too long a time for its performance. Very few of these patients reach the operating table in condition to bear a two or three hour operation.

Third.—Forgetting that the first part of the duodenum is but two or three inches long, and one-third of this is only partially covered with peritoneum and a portion of the remainder is usually excised with the disease. Hence, to attach the esophagus or greatly dilated stomach to such a short immovable duodenum might in many instances produce undue tension, which here would be a dangerous violation of a well-known surgical principle. Unquestionably when in doubt the safer course would be to do a gastrojejunostomy.

Fourth.—While in the latter operation it is immaterial whether the anterior or posterior wall of the stomach be entered, it is most essential that the lowest point of the stomach be selected, and that we especially guard against the possibility of any kinking of the jejunum by appropriate measures, even to the doing of a supplementary enteroanastomotic if necessary.

A gastroenterostomy with the Murphy button and a pylorectomy or partial excision of the stomach after the method described by Dr. W. J. Mayo, are procedures that appeal to me on account of their simplicity, ease of execution, short time required and general effectiveness, and in my limited experience they have proven satisfactory. Those more dextrous in intestinal suturing and general operative skill might do well to select other methods or perhaps do away with any mechanical device like the Murphy button.

What, at the present time, needs to engage our thoughtful attention more than the multiplying of operative procedures, is a study of these morbid processes in life as they are revealed to us on the operating table, that we may acquire a quicker perception of the symptoms they produce, and become better prepared to judge when and when not to attempt the removal or correction of the pathology. We need, too, perhaps most of all, to secure the intelligent co-operation of the internists, for until they appreciate that pyloric obstruction is a surgical condition and one that can not be always even diagnosed except by an exploratory incision, and that can never be hopefully treated except by operation—until the internists not only accept these views in theory, but adopt them in practice, the *dernier resort* operation will continue to be the rule and the timely operation the

exception, and the greatest benefits to be derived from pyloric surgery will not be realized.

REASONS FOR SURGICAL TREATMENT.

Our reasons for believing that the rational treatment of pyloric obstruction should be based exclusively on the surgical conception of the conditions, may be briefly summarized as follows:

First.—In 95 per cent. of all cases the pathology is an organic stricture of malignant or benign origin. It is certainly unreasonable to hope that stricture of this or any other part of the alimentary canal can be overcome except by mechanical means; and it is equally inconsistent to assume that pyloric cancer will yield to palliative treatment or to any other measures that are known to be of no value in the treatment of cancer in other parts of the body.

Second.—Pathology in this region can be reached, exposed and treated quite as conveniently as in other parts of the peritoneal cavity.

Third.—With an early diagnosis and the elimination of the "too late operation," pyloric surgery ought not to be attended by unusual risks, and should promise as good results as surgery done for equally grave conditions in other parts of the peritoneal cavity.

Fourth.—If the ordinary diagnostic measures are not sufficient to enable us to always reach a prompt decision, we know that here a small exploratory incision is a simple, safe procedure, which gives the patient but little discomfort and always affords the surgeon positive information as to the exact conditions.

Fifth.—When life and health are threatened by any intraperitoneal disease, benign or malignant, the timely removal or correction of the causative pathology by mechanical means is a rational procedure of proven value which we should always thoughtfully consider before we permit ourselves to regard the condition hopeless, or subject our patients to the chances of any empiric treatment.

The discussion on the papers of Drs. Knott, Niles and Ochsner will follow the paper of Dr. Ochsner in a subsequent issue.

THE SERUM DIAGNOSIS OF TUBERCULOSIS.

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In numerous journals at short intervals beginning in April, 1898, the Lyonese observers, Arloing and Courmont, have announced the discovery of a means for the diagnosis of early tuberculosis more certain and less harmful than any hitherto known. This naturally attracted great attention at once, although on account of the many difficulties in experimentation and control of results relatively few repeated the original measures. Many means and ways for the diagnosis of incipient tuberculosis have been suggested of late years, but all of them are either harmful or insufficient. By "incipient" tuberculosis is meant that period of the disease in which Koch's bacillus can not be clinically detected in the lesion it produces or in the products thereof.

A few of the methods devised, with the objections to them, are the following:

1. The tuberculin test and its modifications by Koch and others. In this test, filtered or centrifugalized cultures of tubercle bacilli in glycerin bouillon are injected into the patient, and on the following day a febrile reaction occurs in case tuberculosis exists. Sometimes dead tubercle bacilli are used; at other times attempts are made to remove the bacilli from the living cultures by the centrifuge or filter. The chief objections to this method are:

a. It can not be used (according to Koch and his school) in cases in which the temperature rises above 100 F., because the febrile reaction is not sufficiently evident and because harmful results are frequent in these cases.

b. The reaction occurs in latent and practically healed cases, and is said by many, both in these as well as in other mild cases, frequently to cause exacerbations of the disease when not acutely active. It is said very often to change chronic benign forms to acute and virulent ones.

c. Instances have been reported of the production of localized and later of general tuberculosis following the inoculation with tuberculin. Even in the cases of Koch's latest product, "Neutuberculin,"[1] virulent living tubercle bacilli were found in the fluid by Thellung,[2] and rabbits and guinea-pigs were infected.

d. Not all cases react, in which, according to Koch, the use of tuberculin is indicated. It is important to note, too, that the reaction may occur in healed cases and thus may create the impression that the patient is suffering from tuberculosis when the disease in reality has been overcome.[3]

2. Still more unsatisfactory than the use of tuberculin are substitutes for it; of these there have been many. Originally human and animal blood sera were advocated; later artificial blood sera (in which only the inorganic elements of the blood were used), and finally a simple physiologic solution of sodium chlorid.[4]

All of these later methods have been proven less reliable than the use of tuberculin and are subject to all of the same criticisms except the actual introduction of tubercle bacilli. Although apparently harmless, they have also been accused of stimulating latent foci to activity and of causing chronic cases to pursue a more acute course. Their use has, therefore, been generally abandoned.

3. Absolutely harmless, but extremely limited in its field of application, is the injection of animals with supposedly tuberculous products. The method is, however, slow in results; it is not certain and can not always be employed, because necessary materials can not be obtained. In cases where mixed infections have occurred this means can not be used at all, as the animals may die before any evidence of tuberculosis manifests itself.

4. Sometimes tubercle bacilli undoubtedly occur in the sputum and other products, but can not be discovered on account of their rarity. In such cases, e. g., in suspected pulmonary, intestinal or genitourinary tuberculosis, the growth of tubercle bacilli from the products of the processes they induce would be an ideal method of diagnosis, if practicable. Many have devised means of hastening the development of the bacilli under such conditions. The technic, however, is extremely difficult, and the results, up to the present time, have been unsatisfactory. No attempt will be made here to enumerate the endless varieties of culture media suggested for this purpose. It will be sufficient to mention the most promising, that of Hesse,[5] endorsed by some,[6-7] condemned by others.[8]

The great difficulties associated with cultural methods can be appreciated only by one who has attempted to isolate tubercle bacilli from or even to find them in a mixed culture. I have carried out in twenty cases the measures recommended by Hesse and Jochmann. In

five the increase in numbers of tubercle bacilli was considerable, but the number in the original smear preparations was also great. The organisms never seem to multiply greatly unless a large number is used for the first implantation. Up to the present time but few if any cases have been reported in which the diagnosis has been made by the use of cultural methods; and my experience does not create confidence in its practicability.

5. Little can be said at present regarding the merits and demerits of "cytodiagnosis," i. e., the diagnosis of the nature of effusions by the determination of the cells therein contained. Though considerable emphasis has been laid on it by certain French clinicians, it has not been extensively used; many unsatisfactory results have been published and its field of usefulness must necessarily be limited to the study of exudates.*

THE AGGLUTINATION REACTION.

The method of Arloing and Courmont has been claimed to be fully as satisfactory as any of the above and free from any dangers. Nor has its application any limitations—effusions of blood can be used with equal readiness and practically the same results. The only things required for its execution are proper homogeneous cultures of tubercle bacilli and their mixture with blood or other serum, as by the Gruber-Widal method for the diagnosis of typhoid fever.

TECHNIC.[9]

a. Preparation of Cultures.—In the first place, cultures of human tubercle bacilli are grown on potatoes. These potatoes should be of such a character that they do not turn brown on boiling and should readily give up starch granules from the cut surface. They are boiled, put into potato tubes, in the bulb of which is placed enough of a 6 per cent. solution of glycerin in water to touch the lower edge of the potato. They are then put in the autoclave at 111 to 115 C. for the shortest possible time required to render them sterile (about 45 minutes). "Inoculate one of the surfaces of the potato and put the tube in an incubator at 38 to 39 and inclining it at such an angle that the inoculated surface points up and the glycerized water bathes the lower extremity of the slice." Every other day the tube should be tipped so that the colonies are gently immersed in the fluid. As a result of this procedure a luxuriant growth is obtained, which differs from the ordinary growth in being soft and easily completely broken up by stirring in a small mortar or touching with a glass rod. From these growths subcultures are made into the bouillon which is used for diagnosis. To give the best results, this bouillon should be made from beef or veal with 1 per cent. of peptone and 6 per cent. of glycerin. In these proportions the bouillon, while not producing the most luxuriant cultures, furnishes those with the greatest agglutinability.

The object of Arloing and Courmont in devising this elaborate and difficult technic, was to obtain cultures in which the tubercle bacilli were distinct, unclumped and motile. The potatoes are used in the designated way to accustom the organism to liquid surroundings, as well as to obtain soft and easily separable growths. The bacilli when transplanted are preserved distinct, while multiplying in the bouillon, by daily agitation. In this manner we obtain "homogeneous" cultures. An "homogeneous" culture is one which is more or less cloudy or turbid, contains very little or no sediment and in which the bacilli are found isolated, or at any rate not in large clumps. Usually the presence of some small clumps can not be avoided. It is advised to use for the bouillon subcultures cylindrical, i. e., flat-bottomed test tubes, because in these the cultures can be more efficiently agitated.

As a result of this technic Arloing* describes the organism as motile, isolated, straight or slightly curved, often granular, and as a little larger than the bacilli in tissues and as acid proof. Some observers have stated that the degree of motility is equal to that of the *Bacillus typhosus*, but usually the motion is said to be slow, but distinctly progressive. However strange the motility of the tubercle bacillus may seem, some who have worked independently of the Lyon school and with other culture media have made similar observations.[10] Branching forms have been described a few times as a consequence of this method of growth. In my experience they have been especially frequent.

Buard and others[11] state that it is preferable to transfer growths from bouillon to bouillon. After a year of such transplantation Buard believes to have found that (*a*) the cultures grow more rapidly; (*b*) the bacilli are more motile, i. e., the motility is proportionate to the rapidity of growth; (*c*) clumps are less numerous, and (*d*) the bacilli are longer and more slender. The same author prefers the use of carrots to that of potatoes for the initial growth. The method of transference from bouillon to bouillon has proven unsatisfactory in my hands, inasmuch as it has never been possible to grow many bacilli beyond the fourth generation. Nor has it at any time been possible to find more than an active Brownian motion in the hanging-drop preparation. Koch[2] at one time expressed doubts as to the identity of the bacillus described by Arloing and Courmont with his.

b. Use and Preservation of the Cultures.—The bouillon culture should be used for the reaction between the ninth and the fifteenth day of its growth, preferably not later than the 12th. Previous to this it should be shaken thoroughly at least once, better twice, daily. Before the eighth day not enough bacilli are present. After the fifteenth day agglutination with serum is lessened, while on the other hand there is some danger of autoagglutination, i. e., clumping occurs in the culture without the addition of any substance and in spite of most careful agitation.* To preserve the agglutinative power intact, several methods have been devised and are necessary, because the amount of labor required for a single reaction would be enormous if the fluid could not be preserved "homogeneous" for some time. After a culture has proven efficient by testing with a known serum, it may be kept in a good condition for two weeks by any of the following methods: 1. One part formalin to 400 to 600 culture. 2. Carbolic acid in the same proportion. 3. Culture placed in a cold, dark place, as in an icebox. Preferably method 1 or 2 should be combined with 3.[12] More or less precipitation always occurs on standing, and only the supernatant fluid should be used for the tests.

* Cytodiagnosis has been extensively studied in France by Widal, Sicard, Ravaut and many others. A predominance of lymphocytes in the exudate and an absence of endothelial cells "is the formula for an idiopathic, i. e., tuberculous pleurisy." The new membrane is said to prevent the desquamation of endothelial cells. In other forms of inflammation of serous membranes, endothelial cells and polymorphonocular leucocytes predominate; lymphocytes are relatively few (Widal and Ravaut: Gaz. des Hôpitaux, vol. xxii, No. 30). Arloing and Courmont and their school have used this method as one of their controls in the determination of results and find it valuable.

* This corresponds in some respects to the occurrence of autoagglutination in older typhoid cultures as described by Savage, Jour. of Path. and Bact., 1901, vol. vii, pp. 388-399.

c. The Reaction.—To obtain the reaction a perfectly clear serum—blood serum, or inflammatory or simple effusion—is mixed with the culture fluid in varying proportions from 1:3 to 1:50. Preferably a 2 c.cm. test tube is used in which 1, 2, 3, or 4 drops of serum are mixed with bouillon in amounts sufficient to produce the proper ratios. The tubes are inclined at an angle of 45 degrees and allowed to stand in an incubator for from 2 to 6 hours.[13] They are examined at intervals, both with the unaided eye and under the microscope. To the unaided eye the fluid, providing the reaction be positive, should appear less turbid than the control, while a flocculent precipitate appears on the bottom or sides of the tube. The tubes should be examined in a bright light against a dark background.[14] Examined in the hanging-drop preparation the bacilli should appear clumped; not so in the control. Many and varying opinions have been expressed as to the relative merits of the microscopic and macroscopic tests, some holding the one,[14] some the other[15] of prime importance. Both should be used; in the large majority of cases the results are the same; in a few differences are found.

Several difficulties and sources of error present themselves with especial frequency in judging whether or not a positive reaction has taken place. The culture may not have been sufficiently turbid on account of the deficient growth of the bacteria to enable one to decide very readily whether it has cleared to a marked degree in the given time. The reaction can not compare in its sharpness, as a rule, to that seen in the Gruber-Widal reaction. In the examination of the sediment larger clumps must be distinguished from the light flocculent precipitate produced by the reaction, for often, in spite of the most painstaking technic, larger masses of tubercle bacilli may appear in the fluid. Moreover, foreign bodies, such as cotton and dust, may occur. When perfectly fresh serous fluids are used, especially inflammatory exudates of high specific gravity, the precipitation of some fibrin is of very frequent occurrence and must not be confused with clumps of tubercle bacilli. In the microscopic examination, similar precautions must be taken. Sometimes it is impossible to say whether one sees bacilli or extraneous matter. In such cases it is advisable to fix and stain the hanging-drop. By this procedure one is often surprised at finding very few bacilli in a drop, which, in the unstained specimen, appeared to be loaded with them.

MODIFICATIONS IN THE TECHNIC.

The most important modifications in the technic as originally suggested are those of E. Romberg[16] and Robert Koch. Romberg's medium is prepared by the action of 1.5 per cent. NaOH on dried and macerated tubercle bacilli, which are then neutralized by acetic acid. Finally an emulsion is made, which is used for the reaction. This becomes clear when mixed with a serum in the course of 40 to 44 hours. The changes occurring in the second half of the second day are of no diagnostic significance. The microscopic test is of less value than the macroscopic. In the hanging drop small bodies appear in active motion for hours unless an agglutinating serum is added.

Koch's method is essentially the same. Any culture derived from a liquid medium is dried on filter paper, rubbed up in a mortar and diluted 100 times with n/50 NaOH. It is then centrifugalized and the precipitate removed, rendered less alkaline by weak hydrochloric acid and finally diluted with 0.5 per cent. aqueous carbolic acid and 0.85 per cent. NaCl until the original culture has been diluted 3,000 times. The fluid so prepared, it is claimed, is more delicate in its reactions, more easily made and keeps better than the Arloing and Courmont. It is an opalescent liquid and becomes perfectly clear with a positive reaction. Koch recommends cupping as a means of obtaining serum; Arloing and Courmont prefer removal of blood by venipuncture and separation of the corpuscles by centrifugation or clotting.

Romberg's method has been little used; that of Koch seems to have no special advantages[17] and offers greater opportunities for infection of the worker.

RESULTS.

In the newborn there is no reaction in any dilution, nor is there in the very young who have been free from disease.[11,18] The serum of guinea-pigs, rabbits and calves in good health never reacts in as high proportion as one part of serum to five of culture. That of dogs, goats and oxen normally reacts, in this dilution, often higher.[19] From these observations it has been concluded that animals, which are resistant to tuberculosis, acquire sera exhibiting the highest agglutinative powers. The serum of healthy adults may or may not cause agglutination; also that of clinically non-tuberculous patients. In most of these on whom autopsies have been performed latent or healed tuberculous foci have been detected, often, however, only after most painstaking search. The best reactions occur in those cases which are most resistant. The acute cases and those in whom marked cachexia has developed frequently fail to react. Rothamel,[20] whose especial study was the sero-reaction in twenty advanced cases of tuberculosis, obtained no reaction whatever in 30 per cent. of the cases, and in 25 per cent. only at 1:5, which is not better than that frequently obtained in the non-tuberculous subject. This agrees quite closely with the results of Arloing and Courmont and others.[21] On the other hand, those cases in which the symptoms are mild or nil and which progress to rapid recovery, agglutinate the homogeneous cultures in high ratios, i. e., at 1:15-50. The agglutinative power increases with the tendency to recover. The cases which succumb without a struggle do not produce an antitoxin (?) and their serum has no agglutinative properties. Courmont compares this phenomenon to that observed by Tchistowitch and Epiphanoff[22] and himself[23] in cases of typhoid fever. Courmont found that in this disease the Gruber-Widal reaction in mild or moderate cases occurred on the average in dilutions of 1:90. The maximum agglutinative power was never simultaneous with the maximum of symptoms, but almost always appeared at the time of defervescence or even in the post-febrile period. On the other hand, in the more severe cases, the dilution could not, as a rule, be so high; the maximum fluctuated from time to time and became decidedly less just before death. This author even believed that he was justified in drawing some conclusions from these observations regarding the prognosis and the probability of relapse. He believes that the agglutinating reaction in typhoid fever is inversely proportionate to the severity of the case.

On the whole, the reactions of sera derived from effusions into the serous cavities prove nearly as satisfactory for tests as blood serum.[24] Non-tuberculous effusions in tuberculous patients are said not to develop agglutinins, while those originating from tuberculous processes possess as great or even greater powers than the blood serum of the same patient. The results of Romber,[16,18] Donath,[25] Kazarinoff,[26] Mongour and

Buard[11, 15, 27] Dubard,[28] Rothamel,[20] Clement,[29] Rumpf and Guinard,[17] Ivanov,[30] Hawthorn[14] and Bendix[31] agree in all essentials with those of Arloing and Courmont, although not all draw the same conclusions as to the value of the test for diagnostic purposes. It will, therefore, be sufficient to illustrate the nature of the results by a single series of cases reported by Arloing and Courmont. Results under 1:5 or occurring after the allotted time are considered negative.

362 CASES IN WHICH BLOOD SERUM WAS EMPLOYED.

	Pos.	Neg.
a. Clinically tuberculous (191)	168 (87.9%)	23 (12.1%)
b. Clinically non-tuberculous (130)	45 (34.6%)	85 (65.4%)
c. Healthy individuals (41)	11 (26.8%)	30 (73.2%)

CASES IN WHICH SEROUS EFFUSIONS WERE USED.

	Pos.	Neg.
a. Tuberc. pleuritic effusions (31)	23	8
b. Pleur. of doubtful origin (16)	13	3
c. Hydrothorax (non-tuberc.) (11)	0	11
d. Tuberculous ascites (13)	11	2
e. Non-tuberc. ascites (20)	0	20
f. Tubercul. meningitis	..	..

In children all negative. In adults two positive.

Many hundreds of cases have been reported by various observers, and most of them have tables of a nature similar to the above. It may be of interest to compare with these the results of the use of tuberculin as reported by Max Beck. His extensive work with patients of all varieties should give us some notion of the prevalence of undiagnosed tuberculosis. Altogether 2,508 persons were given tuberculin. Of these 1,525, or 60.9 per cent. reacted positively. Of these, however, only 371 gave any clinical evidence of tuberculosis, while the rest, 1,154, or 46 per cent. of all tested, clinically were free. Judging from the results of extensive comparisons between the reactions to tuberculin and postmortem examinations by E. France (quoted by Koch) and numerous veterinarians, little doubt exists that most or all of this 46 per cent. had latent or healed tuberculosis. This figure is not far from that obtained by most of those who have used the serum reaction for the clinically unaffected. (Romberg's reactions for the "non-tuberculous" were 62.7 per cent.) These facts give us a reason why so many apparently normal adults respond to the serum test.

Romberg calls attention to the work of Nägeli,[32] whose study of 500 bodies with a view to discovering tuberculous lesions gives us material for comparison. A single series of cases is here cited:

Age.	Active Latent. Per Cent.	Doubtful. Per Cent.	Inactive Latent. Per Cent.	Total. Per Cent.
18-30	62.0	5.0	33.0	67.0
30-40	42.0	16.0	42.0	58.0
40-50	29.0	18.0	53.0	47.0
50-60	25.0	17.5	57.5	42.5
60-70	27.0	17.0	56.0	44.0
70-80	24.0	21.0	55.0	45.0

The total is made up of those cases which are latent but not healed and those which are doubtful, i. e., those in which it is not possible to judge from the anatomical findings whether or not the process had terminated. Romberg believes that all of these cases react to the serum test. (The above table does not include any but latent cases.) Evidently not all tuberculous individuals react, inasmuch as Nägeli finds some evidence of tuberculosis in practically every adult body (98 per cent.). In children, on the contrary, Nägeli found in 88 necropsies only 15 with tuberculous lesions; most of these were over 14 years of age. In 11 cases this disease caused death. The rarity of a positive serum reaction in a child, therefore, may be interpreted as being due to the scarcity of benign forms of tuberculosis in these years.

A very interesting and important observation in regard to the agglutination of tubercle bacilli was made by Arloing.[33] He found that injection of certain chemicals (other than tuberculin) produced in animals agglutinating sera. Such chemicals are eucalyptol, guaiacol, creosote and mercuric chlorid. The serum reaction produced by these is not so powerful as that produced by the injection of tuberculin, but agglutination occurs in the average dilution of 1:10. Dubard[34] obtained similar results. Not only did the latter find that sera produce precipitation of bacilli, but that even aqueous extracts of tuberculous tissue, of healthy livers and solutions of various chemicals cause sedimentation.[35]

EFFECTS OF AGGLUTINATION ON THE BACILLI.

These have been studied at length by F. Arloing.[36] He sums up the changes in the bacilli produced by the agglutination as follows:

1. There is no change in the morphology or staining characteristics.

2. Contact with agglutinating sera for 5, 10 or 24 hours does not produce bacteriolysis or bacterial death.

3. On the contrary, after 5 to 10 hours of contact the growth in liquid media is considerably improved.

In addition, the motility is found to be decreased or absent and the bacilli lie in clumps of various dimensions.

These statements are not in accord with those of Courmont,[21c,g] who states specifically that tuberculous effusions are decidedly bactericidal. For my part, I have been unable to obtain growths from such bacilli, but experimental inoculation into animals invariably produced tuberculosis. It is of considerable significance that human tubercle bacilli are agglutinated by the serum of all varieties of animal tuberculosis. The converse is no less true. Not only that, but the same effects have been noted by Koch[2] in similar preparations of many other acid-proof bacilli, which are non-pathogenic for man and other mammalia, such as the butter-bacillus (Rabinowitch), the grass bacilli of Korn, the timothy bacillus, the bacillus of fish tuberculosis, etc.

PERSONAL OBSERVATIONS.

My own experiments are limited to 52 cases, in some of which the tests were repeated from time to time, and in which bouillon suspensions of various ages were used.* As a rule, if the suspension was not more than 18 days old no difference in the results was noted. The reactions did not vary after some time had elapsed except in a few instances, which shall be noted below. In 16 cases the blood serum was employed, in 36 pathologic effusions into serous cavities. The tests were as carefully controlled as possible by clinical data, in some cases by tuberculin and in many by injections of effusions into guinea-pigs. In every case a control tube was used, which was compared with those in which sera were being tested. Dilutions varying from 1:15 to 1:20 were used in almost every experiment. In the following tables the positive reactions are given in their greatest, the negative in the least dilution tested.

In brief, the following results were obtained:

BLOOD SERA (16).

Obtained from children suffering from scarlet fever, but otherwise healthy. Cases 4, 5, 6, 8 (14), 12, 16. All negative at 4:15.
Adults suffering from scarlet fever, otherwise apparently healthy. Case 11.—Young man: neg. at 4:15. Case 10.—Positive at 1:15. Case 15.—Positive at 1:20.
In none of these cases was there any clinical tuberculosis.

* The original culture of tubercle bacilli used in these experiments was kindly sent to the laboratory of Rush Medical College by Dr. Trudeau of Saranac Lake, N. Y. The culture was isolated directly from the sputum of a case of acute phthisis by Hesse's method. It had been grown on artificial media for about six months and had never been passed through animals.

Blood from case of puerperal hemorrhage. Case 29.—Neg. at 1:5.
Man. Case 22.—Healthy; neg. at 1:5.
Man. Case 47.—Healthy; neg. at 4:15.
Dog. Case 20.—Healthy; pos. at 1:5.
Case of organic heart disease. Case 26.—Neg. at 4:15. Clinically and at autopsy no active tuberculosis.
Typhoid fever and miliary tuberculosis in young negress; positive Gruber-Widal reaction. Fever two months. Progressive lung changes. Death three months from onset. Pos. at 1:15.
Miliary tuberculosis (autopsy). Case 21.—Positive feebly at 1:10 two to three weeks before death.

PLEURAL EFFUSIONS.

1. Probably or positively tuberculous.
Case 1.—Pos. at 1:10 in 2 hours.
Case 2.—Pos. at 1:10 in 4 hours.
Pos. at 1:20 in 16 hours.
Case 27.—Pos. at 2:15 in 12 hours.
Inoculated g.-pig tuberculous.
Case 32.—Pos. at 1:5 in 12 hours. Greater dilutions negative. Well nourished; one previous attack.
Case 51.—Pos. at 2:15.
Case 38.—Pos. at 2:15 up to two days before death; tuberculosis at autopsy.
Case 31.—Neg. at 1:5. Repeated attacks; emaciation, etc. No bacilli in sputum.
Case 53.—Neg. at 4:15.
Case 55.—Neg. at 3:15.
2. Non-tuberculous.
Case 3.—Nephritis. Neg. in 10 hours.
Case 18.—Post-pneumonic empyema. Neg. at 1:5. Pus was allowed to settle for three days; then formalinized at 1:20 and allowed to stand one day.
Case 24.—Organic heart disease. Neg.
Case 28.—Organic heart disease. Neg.
Case 46.—Acute pleurisy following exposure; first attack. Neg. at 1:5.
Case 33.—Empyema pus, post-pneumonic. Pos. at 2:15 in 12 hours; subjected to same conditions as Case 18.
Case 48.—Pyemia. Pos. at 1:15. General inflammatory conditions: pericordium, pleura, etc. *Staphyl. pyog. aureus* isolated from blood.

ABDOMINAL EFFUSIONS.

1. Tuberculous.
Case 36 (42).—Good response to tuberculin. Pos. at 1:7½.
Case 37 (44).—Pos. at 2:15, 2 months before death. Pos. at 1:5, 2 weeks before death. No good response to tuberculin. Pig died in 45 days of miliary tuberculosis.
Case 40.—Neg. at 1:5. Hyperplastic tuberculosis of lymph glands, tuberculous peritonitis, etc. Necropay. Fluid obtained on day before death.
2. Non-tuberculous.
Case 9 (13).—Cirrhosis. Neg. at 1:5; second test feebly pos. at 1:5.
Case 23.—Cirrhosis. Neg. at 3:15. (? at 4:15.)
Case 54.—Nephritis. Neg. at 1:5.
Case 39.—Splenic anemia. Neg. at 1:5.
Case 56. Probable cirrhosis. Neg. at 1:5.
Case 34.—Typical cirrhosis. Pos. at 1:15.
Case 50.—Cirrhosis. Pos. at 1:7½ macroscop. Neg. microscopically.
Case 49.—Cirrhosis. Pos. at 1:5; neg. at 1:7½.

KNEE-JOINT EFFUSIONS.

1. Tuberculous.
Case 7.—Pos. at 1:20 in 4 hours.
Case 30.—Pos. at 1:5; Neg. at 1:7½.
2. Non-tuberculous.
Case 19.—Gonorrheal arthritis. Neg. at 1:5.
Case 43 (46b).—Multiple arthritis, probably rheumatic. Neg. at 1:5.

MENINGEAL FLUIDS (ALL FROM ADULTS).

1. Tuberculous.
Case 17.—Pos. at 1:5. Confirmed by necropay.
Case 41.—Pos. at 1:15 on day before death. Diagnosis confirmed by autopsy.
2. Non-tuberculous.
Case 45.—Typhoid. Pos. at 1:5. No active or latent tuberculosis found at necropay.

HYDROCELE FLUIDS.

1. Non-tuberculous.
Case 25.—Neg. at 1:5. No reaction in guinea-pig after injection of 15 cmm.
Case 36.—Neg. Careful search made for tubercles in excised sac.

Summing up these experiments we ascertain the following:

BLOOD SERA.

	Pos.	Neg.	Pos.	Neg.
Non-tuberculous	2	12	15%	85%
Tuberculous	2	..	100	..

PATHOLOGIC EFFUSIONS.

	Pos.	Neg.	Pos.	Neg.
Non-tuberculous	6	14	30%	70%
Tuberculous	12	4	73%	27%

It must be born in mind that except in cases on which autopsies are performed it is impossible to say that latent tuberculosis is not present. The number of tests here employed is much too small to be in itself of any value, but the results agree quite closely with those of the majority of workers.

Very different are the statistics of some others, notably Beck and Rabinowitch,[37] C. Fränkel,[38] Koch,[2] de Grazia[39] and others.[34] The work of Beck and Rabinowitch[40] is of especial value on account of comparative tests with tuberculin and the extensive postmortem examination of tested cattle. Although it has been claimed by Arloing and Courmont that there must have been faults in the technic, it is not easy to understand how such gross errors were made. The cultures which they used for their experiments are stated to be identical with those sent to them by Arloing and Courmont for comparative tests. They were unable to discover motility in either their own cultures or in those of the French observers. The following are, in brief, their results:

1. In 19 healthy cattle, 12 were pos. at 1:5.
2. In 4 sick non-tuberculous, 3 were pos.
3. In 17 cattle with incipient tbs., 6 were neg. at 1:5.
4. In 22 moderately advanced tbs., 2 were neg.; 6 were pos. only at 1:5.
5. In 16 advanced cases, 1 was neg.; 4 reacted only at 1:5.
6. In cows inoculated with tuberculosis: 3 were neg.; 5 were pos. at 1:5 only.

In considering these figures it must be remembered that the normal bovine serum has been found to react at 1:5 and that for this reason a reaction at 1:5 should not be considered positive.

In 73 humans the same variations appeared:

1. Tuberculous (phthisis).
Incipient (17), 6 pos.
Advanced (16), 4 pos.
Doubtful (clinically), but reacting to tuberculin, of 5, 1 pos. at 1:5.
Lupus (2), 1 pos.
Nephritis and healed tbs. (1), 1 pos.
Meningitis (1), 0 pos.
2. Non-tuberculous (31).
10 pos.; of these some were tested with tuberculin with neg. results.

The same observers find that the sera of some animals, e. g., dog, ass and goat, agglutinate the test fluid with great regularity.* Koch, in whose laboratory the above results were obtained, and Fränkel confirm this work.

CAUSES OF REACTION.

It is repeatedly asserted by Arloing and Courmont that the cause of the agglutination of tubercle bacilli lies in the formation of an antitoxin which circulates in the blood and appears in the body fluids elsewhere. Comparison is made frequently to the antitoxin produced in the course of typhoid fever. In mild cases of tuberculosis, which go on to a rapid recovery, this antitoxin is said to be produced in large amounts, while in those which are rapidly fatal it is assumed that the time is insufficient for its production. No rational explanation is offered for its disappearance before death in cases, which extend over a long period and finally produce death chiefly from cachexia. It has always been the contention of Koch and his school that the limitation of tuberculous processes is solely a result of the local reactions of the tissue and entirely independent of any systemic changes. There is no evidence in the large majority of cases that the bacilli ever enter the blood stream. The very exhaustive work of Trudeau and Baldwin[41] in attempting to obtain an antitoxin from animals injected with both virulent and non-virulent cultures of tubercle bacilli gave entirely negative results. Numerous other investigators have arrived at the same conclusion, viz., that in tuberculosis no antitoxin is formed. Recent

* Ficker[42] explains the wide discrepancies between the results of Arloing and Courmont and those of Beck and Rabinowitch by the age of the cultures used. A. and C. usually employed growths from 9 to 12 days old, B. and R. cultures 14 days old. Ficker points out that inasmuch as the agglutinating material is used up in the reaction, testing fluids very rich in bacilli are not necessarily completely cleared. Therefore sera of slight agglutinating power may not produce reactions in cases in which very turbid homogeneous cultures are employed. He also finds that the number of bacilli in a culture after 14 days is much greater than after a development of only 10 days.

investigations show, however, that agglutinins and antitoxins may be formed independently of one another.

There is good foundation for believing that the blood serum is so altered at times that precipitation of the tubercle bacillus occurs when it is added to liquid cultures of this organism. Whether or not this property is a specific result of the action of the tubercle bacillus is doubtful. According to Arloing agglutination may be produced by the blood of animals which have been injected with certain chemicals. It also may occur to a considerable extent with serums of many normal animals. On the other hand, similarly prepared cultures of practically all of the known acid-proof bacilli react in the same way to agglutinating sera. But it is extremely doubtful whether these organisms have anything in common beyond their reaction to acids and possibly the presence in them of certain fats.[42] The foregoing considerations warrant the conclusion that the agglutination of tubercle bacilli and the presence of tuberculosis are not necessarily related. Changes which are too slight to be detected by our present methods of chemical analysis may occur in the blood after removal from the body, which render it more easily capable of causing the precipitation of bacilli.* A fluid mixture which spoils even in the dark and in the cold in two weeks after preparation, must be so delicate that even very slight changes in the blood sera might affect it. Many organisms are clumped by ordinary blood in the lowest dilution (1:5) used in this test. In brief, we obtain the reaction in cases when tuberculosis plays no rôle; whether or not tuberculosis produces the agglutinating sera in many cases, remains an open question.

A casual glance is sufficient to show the many stumbling blocks in the way of arriving at a decision of the significance of the reactions. The presence of agglutinating serum in 30 per cent. (Arloing and Courmont) to 62.7 per cent. (Romberg) of those who never have any clinical evidence of tuberculosis must always be confusing to one who attempts by this method to determine the nature of the disease in question. A negative result may mean: entire absence of tuberculous lesions, healed tuberculosis, acute tuberculosis or tuberculous cachexia; and (in the judgment of those who have had the most favorable results) even some of the relatively mild cases do not respond. A positive agglutinative reaction may represent a normal adult individual (according to Nägeli a normal adult individual has some tuberculosis); it may stand for a highly resistant organism struggling against the disease, or it may represent the 70 per cent. of advanced or acute cases of tuberculosis in which the reaction occurs. It is especially in the acute virulent forms that we stand in need of a rapid and efficient means of diagnosis, and it is in these forms that the sero-reaction is, even in the eyes of its most ardent advocates, least trustworthy.

Practically only the newborn never have elements in their sera under normal conditions which cause the precipitation of tubercle bacilli. Romberg concludes from this that this measure should be especially valuable in the young. But, in the young, tuberculosis usually assumes an acute form; hence also under these conditions the serum reaction may leave us in the lurch.

CONCLUSIONS.

1. Under various conditions animal sera agglutinate homogeneous cultures of human tubercle bacilli in liquid media.

2. Such sera may be obtained from the human or animal body without the presence in it of the bacillus tuberculosis.

3. It is doubtful whether the agglutinative powers are ever due to the specific action of the bacillus tuberculosis.

4. The presence or absence in the adult human blood serum of agglutinative properties for tubercle bacilli is no decisive evidence of the presence or absence of tuberculous lesions in the body.

It gives me great pleasure to thank Professor Hektoen for his assistance and encouragement in this work.

* *Cfr.* A. Fischer: Z. f. Hyg., 1900, vol. xxxv, pp. 1-58. Die Empfindlichkeit der Bakterienzelle und das baktericide Serum.

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14. Hawthorn: Soc. de Biol., 1902, vol. liv, p. 632, finds that it is easier to see the precipitate by transmitted light. This has also been the author's experience.
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39. Berl. klin. Woch., March 17 and 24, 1902. Also Gaz. degli Ospedali, Sept. 8, 1901.
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THE TRANSMISSION OF YELLOW FEVER.*

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Several American observers have noted that during the yellow fever outbreaks mosquitoes were very numerous, among them Rush,[1] at Philadelphia in 1797; Dr. Weightman,[2] of the U. S. Army, at St. Augustine, Fla., in 1839; Dr. Wood,[3] at Centerville, Miss., in 1853. Dr. E. H. Barton[3] states "that at Clinton, La., in 1853, mosquitoes were uncommonly numerous night and day." At Trinity, La., in the same year, when sawdust was used to fill up low places in the streets, the disease was not propagated, though many cases were brought there and no precautions were used.[3] It is hardly necessary to note what the effect of this obliteration of puddles would be on the development of mosquitoes. Dr. Beyrenheidt[3] of Biloxi, Miss., in reporting a severe epidemic at that place in 1853, during which 533 cases and 111 deaths occurred in a population of 5,520, makes the interesting statement that "mosquitoes and fleas were very abundant." Dr. Bennett Dowler strongly urged drainage of the city of New Orleans, and spoke of the city and its environs as "mosquito lands."[4] La Roche[5] states that in 1793, during the epidemic in Philadelphia, "the narrow streets and alleys near the wharves, as, indeed, in many other parts, were in a foul state, and the gutters almost everywhere sadly neglected." In 1794 Rush and others ascribed the fever to exhalations from wharves, neglected gutters and stagnant ponds.[5] In 1797, during another outbreak in Philadelphia, the condition was practically the same; the Academy of Medicine called the attention of the governor to the putrid exhalations from the gutters, streets, ponds and marshy grounds of the neighborhood of the city.[5] While high temperature, low altitude and the presence of standing water are the conditions most favorable to the development of a yellow fever epidemic, there are numerous instances on record where the disease after introduction spread from house to house throughout the town in places where the general conditions of sanitation and drainage were good. This is now explained by the habits of the mosquito (*Stegomyia fasciata*), which breeds in standing water, in houses as well as out of doors. As a general rule, in ports where yellow fever epidemics first appear, the conditions are known to be favorable for the development of enormous numbers of mosquitoes.

A very interesting observation was made in 1839 in South Africa by Wm. Ferguson, then a surgeon in the South African corps, in regard to the extension of yellow fever from Sierra Leone (where it had been brought on vessels from the West Indies) to Gambia, Goree and Ascension, the subsequent ports of arrival of some of these infected vessels. After mentioning an unusually heavy accumulation of mud and filth in a pit at Ascension, which was said to have been the cause of the fever occurring after an unusually heavy fall of rain, he makes the following statement:[6] "It will be observed that at Ascension, at Goree and at Gambia, a period of three or four weeks always elapsed betwixt the landing of the sick and the epidemic outbreaking of the disease among the population, a degree of uniformity worthy of remark, whether the conclusions at which I have arrived (that the disease was carried to these places on infected vessels) be mistaken or not." These outbreaks were accompanied by black vomit and were undoubtedly yellow fever of imported origin.

Just sixty years later Carter[7] made a similar observation in the United States, shortening the period slightly and giving cases and data. In a later paper[8] he designates the interval between primary and secondary cases the period of "extrinsic incubation."

The known facts regarding the apparent non-contagiousness of the disease, the peculiar manner in which it has been seen to pass from one house to another without intercommunication of the inhabitants, and the numerous points of resemblance between yellow fever and malaria, led us to expect results from mosquito inoculations in yellow fever. After satisfying ourselves that *B. icteroides* (Sanarelli) was not to be considered, Drs. Reed, Lazear and myself, in consultation, decided that the mosquito theory had many facts to support it and could be promptly decided one way or the other. This leads us to a consideration of the mosquito theory of Finlay.

At the session of the Royal Academy of Sciences, Havana, Aug. 14, 1881, Finlay first gave to the world his memorable theory of the transmission of yellow fever by the mosquito, and reported five experiments, which are included in the accompanying table, comprising all of Finlay's and Delgado's positive cases published in 1891.[9]

Finlay believed[10] that the transfer of the specific agent of the disease from patient to non-immune was effected mechanically by the insect's proboscis,[14] and that the infection would be conveyed immediately if the insect chanced to bite a susceptible person a few moments after feeding on a patient in the proper stage of the disease.[11] He also thought that the graver forms of yellow fever might be produced by the bite of *Culex pungens*, because the insect ingested a larger amount of blood than stegomyia, and consequently a greater quantity of the virus would be retained on its proboscis (stylet).[11] He ventured the opinion that yellow fever was a sort of eruptive fever, and that the seat of the eruption was the endothelial lining of the blood vessels, and that the mosquito picked up the inoculable material from the interior of the blood vessels on its biting apparatus and transferred the same to the interior of the vessels of the person subsequently bitten.

In a later paper he assumes that the picking up of these germs by the proboscis of the mosquito is selective, because there is nothing to prove that other inoculable diseases have ever been so transmitted. From four culture experiments, in each of which the head and proboscis of a mosquito was dropped into a bouillon tube, he infers that the head and proboscis of the day mosquito possesses bactericidal properties for ordinary bacteria and fungi with the exception of a coccus, which was subsequently[12] claimed to be the specific agent of the disease.[13] The sting of the mosquito is suggested as the "intermediate host" necessary for some phase of development of disease germs.[14]

As late as 1899 Finlay mentions the isolation of the tetracoccus from culture media into which the heads and proboscides of contaminated mosquitoes had been dropped, as one of the three results of his experiments on yellow fever mosquitoes.

In a paper[12] published in 1895 he announced some very interesting results obtained with the "tetracoccus." A number of rabbits were inoculated intraperitoneally with cultures in bouillon; one of these cultures had been obtained from the head and proboscis of a mosquito by placing them in a tube of bouillon five days after the insect had been a yellow fever patient; the others came from the finger blood and milk of yellow fever patients.

* Read at the Fifty-fourth Annual Session of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. W. S. Thayer, J. M. Anders and Frank A. Jones.

All of the rabbits died; some of them showed infarcts of the kidneys, lungs and liver. A rabbit obtained from the country was placed in the stable where some of the other rabbits had been kept, and at the end of eight days it was found dead. The tetracoccus was obtained from its heart's blood.

Eleven days after the rabbits had been removed from the house (the stable is usually a part of the house in Havana) a Spanish wet nurse came to spend some time there, and on the third day following her arrival she was attacked with yellow fever. Mosquitoes had been unusually abundant in the house during the whole time the inoculated rabbits had been kept in it, and we are asked to keep this in mind, in view of the possible transmission of the disease from animals to man. We are told that the blood from the finger of this woman on the third day of her illness gave the "pale yellow tetracoccus," and the milk from her breast gave a "white tetracoccus," which proved fatal to a rabbit in fifteen days.[13]

While reading the accounts of these experiments one is constantly reminded of the pathogenic staphylococci. It is strongly suggested[13] that the rabbits died of yellow fever, and it is asserted that the experiments justified the assumption that the tetracoccus was the "specific germ of yellow fever."

The statement is also made in this paper that of one hundred presumably susceptible persons who had received the mosquito inoculation during the fourteen years previous, only three had subsequently died of yellow fever.[13]

I have been unable to find records of these one hundred cases in the library of the Surgeon-General's office, and submit those of which the data are accessible to me. As these include the cases on which Dr. Finlay's claim is based they will suffice for the purpose. The fifty-four negative cases are omitted.

Case 3 was bitten by a mosquito that had been fed on bloody excrement from another mosquito that had been found inside the mosquito net of a fatal case. The material was allowed to dry for twenty-seven days in the test tube and was then moistened with a little sugar and water to prepare it for feeding.[15] There is a marked difference between the method of procedure herein described and that given in 1901,[16] when Dr. Finlay said, "I applied a nocturnal mosquito and allowed it to fill itself from a case of yellow fever. After pricking the side of the insect's abdomen I mixed the blood which escaped with a drop of sterilized syrup and fed with it a fresh culex mosquito, and finally applied the latter to a third soldier (July 29). Two days later July 31, the soldier went to the hospital with a fever which was also recorded as "abortive yellow fever." This case (L. G. P.) was omitted from the paper published in 1881, as stated, but was included in 1891 in the report from which the cases here recorded are taken.

Case 4 is further discussed in English in a foot note on p. 368 of the Revista de la Asociacion Medico-Farmaceutica, Havana, February, 1902. (History of illness vague. Did not go to bed or report himself sick.) The first five cases were newly-arrived soldiers, stationed at Cabanas and who were brought to the city of Havana for examination once in every five days.

Case 9 is cited by Finlay[17] in refutation of our conclusion[18] that the mosquito is not capable of infecting until about twelve days or more have elapsed after it has bitten the patient.

Case 55 was a Spaniard, newly arrived, who lived at a country residence. At both attempts to inoculate him the mosquitoes failed to bite; nevertheless he was taken sick August 26. Another non-immune who occupied an adjoining room was taken sick with similar symptoms, a few days later. No further comment is necessary, except that the cases of the Army Commission and of Dr. Guiteras were kept under close observation and strict control. Nearly all of Dr. Finlay's cases were exposed to infection in the city of Havana. Only four of them come within the recognized periods of incubation, viz., Nos. 2, 3, 4 and 66. The first three of these were inoculated in Havana in July, 1881, during which month there were ninety deaths from yellow fever in that city alone. The last was inoculated in August, 1890. In that month sixty deaths from yellow fever are recorded for the city of Havana.

TABLE 1.—MOSQUITO INOCULATIONS REPORTED BY FINLAY AND DELGADO IN THE ARCHIVES DE MEDICINE NAVALE, TOME 55, PARIS, 1891.

No. of Case.	No. of Patient.	Date of Contamination of Mosquito.	Date when the Patient was Bitten.	Period in Mosquito.	Date of Attack of Fever.	Period of Incubation.	Character of Attack.	Albuminuria?	REMARKS.
1	F. B. M.	June 28, 1881	June 30, 1881	2 days	July 14, 1881	14 days	Mild	Yes	Excessive period of incubation.
2	Aly. C.	July 16, 1881	July 22, 1881	6 "	July 27, 1881	5 "	Abortive	No	Insect bit Dr. Finlay July 20.
3	L. G. P.	July 26, 1881	July 29, 1881	3 "	July 31, 1881	2 "	Mild	No	Infection by mosquito excrement.
4	D. L. F.	July 29, 1881	July 31, 1881	2 "	Aug. 5, 1881	5 "	Abortive	?	Did not report himself sick. History of illness vague.
5	D. G. B.	July 31, 1881	Aug. 2, 1881	2 "	About Aug. 30, '81	18 "	Mild	?	Excessive incubation period.[15]
8	J. B.	June 20, 1883	June 22, 1883	2 "	July 9, 1883	17 "		No	Two mosquitoes used. Excessive incubation period. Resided in Havana.
9	P. U.	Aug. 13 & 15, '83	Aug. 17, 1883		Aug. 26, 1883	9 "		No	Excessive period of incubation. Jesuit priest, lived at Marianao near Havana.
13	J. S.		Aug. 18, 1883		Sept. 9, 1883	22 "		No	Excessive period of incubation. Lived at Marianao. Moved to Havana six days before his attack.
28	H. Oz.		Sept. 7, 1886		Sept. 23, 1886	16 "	Mild		Excessive period of incubation.
32	J. P.		June 16, 1887		July 11, 1887	25 "	Trace.		Excessive period of incubation.
42	P. Rem.		June 8, 1888		July 1, 1888	23 "	No		Excessive period of incubation.
55	P. Go.	Not stated	Aug. 17, 1889		Aug. 26, 1889	9 "	No		Excessive period of incubation.
66	H. Ola.	Not stated	Aug. 14, 1890		Aug. 21, 1890	7 "	No		Lived at a country residence near Havana.

Finlay has published a great many conjectures and speculations in regard to yellow fever transmission. Some of these, such as the belief that the disease was transmitted by the mosquito, have been proven by our work, but not in accordance with his ideas. I can find no evidence that he has produced a single case of yellow fever by his inoculations. In the first place the mosquito is incapable of transmitting the disease in so short a period as two to five days after biting the patient. In the second place seven days must be placed as the extreme limit of incubation in the human being. Our longest period was between five and six days. Finlay conveniently puts the ordinary limit of yellow fever incubation between five and twenty-two days.[14] The efficiency of the five-day quarantine regulation proves that incubation in man certainly does not extend over six days, or seven at the extreme, and in the thirty experimental cases recorded by ourselves and Guiteras the former period has never been exceeded.

In a letter of Aug. 20, 1901, Dr. Finlay[19] states he was convinced that extension of the interval between the application of the mosquito to the patient, and subsequently to the non-immune, would develop a severe attack, such as he was anxious to avoid. One can sympathize with the humane feeling that prompted him to forego positive proof of his theory rather than run the risk of producing a severe attack, but it is a fact that

on Aug. 22, 1901, two days later than the date of that letter, I saw Dr. Finlay apply to a non-immune two mosquitoes that had been kept thirty-four days after contamination.[20]

TABLE 2.—NEGATIVE MOSQUITO INOCULATIONS OF THE ARMY COMMISSION.

Number.	Character of Attack and Number of Patients Bitten.	Day of Disease.	Interval in Mosquito. (Room temp.)	Date of Application of Mosquito.	Number of Mosquitoes Applied.	Remarks.
1	Mild, 1	7th	5 days.	Aug. 11, 1900	1	Negative.
2	Very mild, 1.	5th	5 "	" 11, 1900	1	"
3	Very mild, 1.	5th	6 "	" 12, 1901	1	"
4	Very mild, 1.	5th	6 "	" 12, 1901	1	"
5	Very mild, 1.	5th	8 "	" 14, 1901	1	"
6	Very mild, 1.	5th	10 "	" 16, 1901	1	"
7	Severe, 1	2d	3 "	" 18, 1901	1	"
8	Very mild, 1	5th	13 "	" 19, 1901	2	"
	Severe, 1	1st	3 "			
	Fatal, 1	2d	6 "			
9	Mild, 1	1st	4 "	" 25, 1901	1	"
	Severe, 1	2d	2 "			
	Severe, 1	2d	3 "			
10	Severe, 1	3d	6 "	Nov. 20, 1901	1	"
	Severe, 1	5th	11 "			Repetition of No. 10.
	Severe, 1	3d	6 "			
11	Severe, 1	3d	9 "	" 23, 1901	1	"
	Severe, 1	5th	14 "			
12	Moderate, 1	3d	12 "	" 26, 1901	1	"
	Well marked, 1	2d	10 "			Repetition of No. 14.
13	Moderate, 1	3d	15 "	" 29, 1901	1	"
	Well marked, 1	2d	13 "			
14	Severe, 1	2d	10 "	" 26, 1901	1	"
15	Severe, 1	2d	13 "	" 29, 1901	1	" Repetition
16	Severe, 1	2d	16 "			
	Fatal, 1	3d	12 "	Dec. 2, 1901	2	"
17	Well marked, 1	3d	12 "	Nov. 26, 1901	1	"
18	Well marked, 1	3d	15 "	" 29, 1901	1	" Repetition
19	Well marked, 1	3d	18 "	Dec. 2, 1901	2	"
20	Mild, 1	1st	4 "	" 17, 1901	14	"
21	Mild, 1	1st	11 "	" 24, 1901	7	" Repetition
22	Very mild	8th	82 F., 22 days.	Jan. 25, 1901	12	"
		hr.				

NOTE.—The subjects of Experiments Nos. 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, and 21 were proved to be susceptible by subsequent experimental infection. No. 22 declined a second test. In Experiments 20 and 21 the same set of insects and the same subject were used. Four of these insects infected this man six days later, on Dec. 30, 1900.

I have been impelled to look up the literature of this subject because I have seen several times of late the statement of Dr. Finlay that the Army Yellow Fever Commission has tacitly ignored his right of priority.[21] It is too late, after facts have been proved and recorded by others, to claim priority unless one can point to unmistakable evidence, in print, as proof that the facts have been demonstrated and duly reported. In our preliminary report[23] Dr. Finlay has been given due credit for priority in advancing and advocating the mosquito theory. Nothing more is due to him. He states[21] that he had "many years ago discovered that yellow fever was transmitted by mosquitoes," when in reality he simply assumes that to be the case, and the facts recorded by him do not sustain his claim.[23] He further states[21] that his own work had been singularly misrepresented before the American public, and that "among the facts and conjectures which are attributed to the recent investigators there is scarcely one which had not been asserted, demonstrated or suggested by me, as the result of my personal experiments and observations." One can only express admiration for this eminent scientist's persistent adherence to his theory, but the unbiased observer, after a perusal of his numerous writings, must agree with us that while he asserted and suggested everything that intelligent reasoning and profound knowledge could suggest, he failed to produce a single case of the disease. Our results have been confirmed by Guiteras with eight cases and three deaths;[24] Dr. Finlay's assumed results have never been confirmed by a single investigator. In our "Additional Note,"[25] we report among other instances one in which the bites of fourteen insects, applied four days after contamination, failed to infect, and the seven remaining alive failed also to infect eleven days after contamination, but on the seventeenth day following contamination the bites of four of the same insects produced an attack of yellow fever in "the same individual." During the whole of this time these insects had been kept in a heated room at an average temperature of 82 F. If, as is claimed by Finlay,[26] protection is conferred by one or two bites of "recently contaminated" (two to five days[19]) mosquitoes, this individual, who had received twenty-one bites from recently contaminated insects, should have been able to resist the bites of four of the same insects six and thirteen days later. Should one accept Finlay's extension of the incubation period to twenty-two days infection might then be erroneously attributed to the bites inflicted thirteen days before the onset of fever.

The Army Board worked on an entirely different hypothesis from Finlay, who believed that the infecting agent was retained on the biting parts of the mosquito, that infection was direct and no interval was necessary. The board worked on the hypothesis that the specific

TABLE 3.—POSITIVE MOSQUITO INOCULATIONS OF THE ARMY COMMISSION.

No.	Character and Number of Patients Bitten.	Days of Disease.	Period in Mosquito.	Number of Mosquitoes Used.	Date of Application of Mosquitoes.	Incubation.	Character of Attack.
1	Severe, 1	2d.	12 days	Room temp.			
	Mild, 1	1st.	6 days	1	Aug. 27, 1900	3 days, 7 hours	Severe.
	Severe, 1	2d.	4 days				
	Mild, 1	2d.	2 days				
	Fatal, 2	2d.		Room temp.			
2	Mild, 8	1st and 2d.	2 to 16 days	4	Aug. 31, 1900	6 days	Moderate.
	Severe, 7	1st, 2d and 3d.					
	Fatal, 3	2d.	2-15 days	Room temp.			
3	Severe, 1	3d.	1-19 days	5	Dec. 5, 1900	3 days, 10 hours	Pronounced.
	Mild, 1	3d.	2-21 days				
	Fatal, 1	3d.	17 days	Room temp.			
4	Severe, 2	2d and 3d.	18 and 22 days	4	Dec. 8, 1900	5 days, 17 hours	Mild.
	Moderate, 1	3d.	24 days				
5	Fatal, 1	2d.	19 days	1 (Room temp.)	Dec. 9, 1900	3 days, 12 hours	Mild.
6	Fatal, 1	3d.	20 days	Room temp			
	Severe, 2	2d and 3d	21 and 23 days.	4	Dec. 11, 1900	3 days, 20 hours	Moderate; relapse on 3d day.
	Moderate, 1	3d.	27 days				
7	Severe, 1	2d.	1-24 days	82 deg. F.			
	Well marked, 2	1st.	10-5 and 12 days	15	Dec. 21, 1900	3 days, 23 hours	Pronounced.
	Mild, 1	1st.	4-8 days				
8	Mild, 1	1st.	17 days	4 (82 deg. F.)	Dec. 30, 1900	3 days, 23 hours	Mild.
9	Well marked, 1	3d.	39 days	3 (82 deg. F.)	Jan. 19, 1901	4 days	Moderate.
10	Well marked, 1	3d.	51 days	2 (82 deg. F.)	Jan. 31, 1901	3 days, 3 hours	Mild.
11	Well marked, 1	3d.	57 days	2 (82 deg. F.)	Feb. 6, 1901	3 days, 6 hours	Mild.
12	Fatal, 1	2d.	16 days	3 (82 deg. F.)	Feb. 7, 1901	2 days, 22 hours	Moderate.
13	Fatal, 1	3d.	1-53 days	4 (Room temp)	Sept. 16, 1901	3 days	Severe.
	Fatal, 1	2d.	3-34 days	8 (Room temp.)	Oct. 9, 1901	3 days, 8 hours	Mild.
14	Severe, 1	2d.	18 days				

agent of yellow fever was probably one of that group of strict parasites that in nature necessarily pass through two distinct and alternating cycles of development, one within the body of a vertebrate, the other within a blood-sucking invertebrate host. Finlay believed that the bite of a single insect would confer a mild infection and multiple bites a severe one. In my own case, produced by the bite of a single insect, a fatal result was looked for during several days. Dr. Lazear was bitten by a single insect and died.[27] I became so firmly convinced that the severity of an attack depended on the susceptibility of an individual rather than on the number of bites sustained, that on Oct. 9, 1901, at Havana, I purposely applied to a non-immune eight mosquitoes (all I had) that had been contaminated eighteen days before. The attack that followed was a mild one, the temperature never reached 103 F., and dropped to normal on the evening of the fourth day.[27]

The original theory of Finlay has been variously modified by him from time to time to meet possible contingencies. He now evidently inclines to the belief that

TABLE 4.—POSITIVE MOSQUITO INOCULATIONS OF DR. GUITERAS.

Number.	Character of Attack and Number of Mosquitoes Bitten.	Day of Disease.	Period in Mosquito.	No. of Mosquitoes Used	Date of Application of Mosquitoes.	Incubation.	Character of Attack.
1	Severe, 1	1st	26 days	1	Feb. 23, 1901	3 days, 10 hours	Pronounced
2	Severe, 1	3d	19 "	4	Aug. 8, 1901	4 " 5 "	Fatal
3	Severe, 1	3d	19 "	4	Aug. 8, 1901	3 " 3 "	Mild
*4	Severe, 1	3d	20 "	3	Aug. 9, 1901	5 " 3 "	Fatal
5	Severe, 1	3d	24 "	1	Aug. 13, 1901	3 " 19 "	Mild
6	Severe, 1	3d	24 "	2	Aug. 14, 1901	3 " 21 "	Fatal
7	Severe, 1	3d	24 "	3	Aug. 14 1901	5 " 21 "	Moder'ly severe
8	Severe, 1	3d	34 "	2	Aug. 22, 1901	3 " 0 "	Severe

*Case 4 had been bitten with negative result ten days previously by four mosquitoes five days after they had bitten a fatal case in the third day of the disease. See Case 33 of Guiteras' table. Amer. Med., Nov. 23, 1901, p. 811.

development of the germ takes place in the salivary glands of the infected mosquito.[21]

A complete proof or disproof of his claim of positive results for his recorded inoculations could easily be obtained by means of a series of innocent experiments. It is interesting to note that at the very time when this distinguished authority is in position to confirm the results of his first inoculations, if they are susceptible of confirmation, he takes the ground that inoculation experiments on human beings in Cuba must be strictly forbidden.[21]

It is unfortunate that Dr. Finlay in his numerous contributions to this subject very seldom gives exact references that would enable one to compare his more recent assertions with his former statements. In regard to his expressed opinion that the great merit of our work consists in our having accurately defined the danger line, beyond which there is a risk of producing severe or fatal experimental cases when non-immunes are inoculated with mosquitoes whose contamination is more than ten days old,[21] I desire to record my belief, based on experimental observation and on the results obtained by Guiteras, that it is impossible to confer protection or to produce infection of any grade, with an insect that has been contaminated less than a week, and that inoculations with a mosquito contaminated for a shorter period will be absolutely devoid of result. The accompanying tables, compiled from our and Guiteras' cases, afford a substantial basis for the assertion. I deem it a duty to the service to which I belong, to my dead colleagues (Reed and Lazear) and to the profession, to state the facts plainly and clearly. I do not expect that this paper will remained unanswered; nevertheless, I shall decline to engage in controversy and leave the final determination to those who are competent to judge, after they have carefully perused the publications herein referred to.

The mosquito theory has been practically demonstrated by the army commission and Dr. Guiteras in two series comprising twenty-two cases in all. The non-communicability of the disease by means of fomites has been a matter of common observation in certain localities, and has also been demonstrated practically by our own experiments and those of Havard and his associates. Yellow fever, therefore, is not a filth disease, in the strict sense of the term, and filthy accumulations are dangerous in this connection only, when accompanied by sufficient moisture to breed mosquitoes under favorable conditions of temperature. Under such conditions standing water is a source of danger, within dwellings or without, and whether dirty or clean, unless it be kept covered or is changed every few days. Yellow fever is a preventable disease; quarantine, if effective, will exclude it, but if the quarantine be evaded and cases gain entrance to a city the disease can be absolutely controlled and finally exterminated by measures directed against the mosquito alone.

Carter[7] has well shown[8] that first cases are not dangerous until after the lapse of a number of days, for, in his experience, persons in direct contact with them for a few days only never developed the disease after being placed in quarantine. This applies only to the first cases occurring in a town or neighborhood. He found that secondary cases did not appear until the expiration of a number of days varying from 11½ to 29, the average being eighteen. This interval represents the time necessary for the mosquito, after biting a patient, to become capable of infecting, plus the period of incubation in the person bitten.

The greatest obstacle to the control of this disease is the failure to recognize the first cases when they are not accompanied by black vomit. Some of these cases are so mild in character that no physician would dare to pronounce them yellow fever unless he knew the disease to be prevailing at the time. Susceptible persons visiting the house or living in adjoining houses would be bitten and develop the disease in near or distant localities several weeks later, forming secondary foci of infection. From these secondary foci tertiary foci would in time develop. The diagnosis of bilious remittent fever, dengue, etc., would serve to cover the earlier cases until the appearance of black vomit, by which time the infection would have become more or less widely disseminated. Such is the history of many outbreaks.

The number of mosquitoes in infested districts can always be appreciably diminished by giving attention to surface drainage and the removal of standing water, no matter how small the quantity or how pure the quality may be. Rain-gutters and conduits on buildings should be kept clear and free; cisterns, wells, flush-tanks and other permanent receptacles for water should be kept tightly covered or securely screened; privies and cesspools should be cared for; air vents to cisterns and wells protected by screens; and water should never be permitted to stand in any vessel or receptacle within a building longer than three or four days. Ditches and open drains containing water should be frequently

flushed; old cans, crockery, etc., should be removed from the vicinity of dwellings; pools or ponds should be stocked with fish and deepened at the margins or treated with petroleum. As the stegomyia is largely a house-dwelling and a house-breeding insect, these and other similar measures will surely diminish their number and add to the general comfort and protection. In places exposed to yellow fever infection all fever patients should be protected, night and day, from the bites of mosquitoes by the use of netting and wire screens. Strict quarantine measures, local and general, with the isolation of patients and extensive and thorough fumigation of the localities where they are found will insure suppression of the disease wherever it may appear.

In the suppression or control of yellow fever disinfection, apart from fumigation, is a waste of time and money. Natural yellow fever is transmitted by the mosquito, and always and only by the mosquito. The harmlessness of fomites has been fully demonstrated by our experiments in 1900 and 1901, in which three young Americans slept for twenty consecutive nights in a room garnished with articles soiled with black vomit, bloody fecal discharges and urine from fatal and other cases of yellow fever. Three and four large boxes were packed and unpacked with these articles night and morning by these non-immunes, who suffered no disturbance of health from these exposures. The room was twenty feet by fourteen feet, double walled, tightly ceiled, heated to above 90 F. and dark. Water was always present to keep the atmosphere moist. Two other non-immunes then occupied the room for twenty nights while additional articles of bedding and clothing were added. They slept in the garments and between the sheets that had covered cases of yellow fever, some of which were fatal. The result of this second exposure was *nil*. A third attempt was then made with two additional non-immunes equally without success. Not the slightest indisposition followed close and intimate contact with this repulsive material in any case. Temperatures and pulse rates were recorded at regular and frequent intervals. Four of these seven non-immunes were subsequently infected by blood injections and by means of infected mosquitoes. A fifth resisted the mosquito once[28] and declined further attempts at inoculation.

Yellow fever has been eradicated from Havana, one of its endemic homes, by the institution of measures directed against the mosquito, after extreme cleanliness and energetic disinfection had proved a dismal failure. Several cases subsequently imported into that city have been handled with impunity by guarding the patients against the bites of those insects. A small outbreak in Santiago de las Vegas in 1901 was promptly suppressed by Colonel Gorgas by the use of means directed only against the mosquito. On those who decline to accept such evidence must rest the burden of proving that the disease is transmitted in some other way before their position can be sustained.

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THE STEGOMYIA AND FOMITES.*

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As a student since 1851 of yellow fever, especially of its causation and prevention; and as a citizen of New Orleans, who has shared its blighted prosperity and its grief, greater, because of this disease, than has afflicted any other place in our country, I deem it my first duty to express most profound and grateful appreciation of those who have, since 1900, contributed facts of incalculable value for prevention and for commerce.

The notable experiments of Dr. Walter Reed and his assistants, Drs. James Carroll and A. Agramonte—added to and strengthened by the researches and labors of Drs. Carlos J. Finlay and John Guiteras, of Drs. W. C. Gorgas, John W. Ross, H. R. Carter and probably others—and rendered possible by the official encouragement and aid of Surgeon-General Sternberg, U. S. A., and of Governor-General Wood, M.D., have contributed to our knowledge of yellow fever facts that I hope and believe will prove of greater value than all the facts gained by all preceding students of the disease. The names cited deserve the earliest place on the roll of honor of the twentieth century, the century probably destined to become unprecedentedly illustrious for additions to the best of all knowledge, that which contributes to the health and welfare of mankind.

These investigators have contributed four sets of precious facts:

First—Fresh blood or its serum, taken from a case of yellow fever during the first days of the attack, will give the disease, if hypodermically injected into a non-immune. Hence the blood contains the poison, probably an ultra-microscopic germ, as I maintained in 1880, and this poison, when fresh, is infective without undergoing any change outside of the body.

Second—The female stegomyia, serving as an intermediate host, can convey the poison to non-immunes. In 20 experimental cases (Reed's 12 and Guiteras' 8) the stegomyia became infected by sucking the blood during the first four days of the attack, but not later; and an interval of at least twelve days was required to infect a non-immune. However, it deserves note that no one has stated or proved that more numerous experiments might not have yielded some cases wherein the four days' time

* Read at the Fifty-fourth Annual Session of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. W. S. Thayer, J. M. Anders and Frank A. Jones.

would have been prolonged and the twelve days' interval shortened. The facts thus far stated have not, I think, been denied by any one.

Third—Excluding all mosquitoes, fomites prepared and kept under all the known conditions, universally supposed to be the very best, for supplying the most virulent fomites, failed in December and January, though an artificial summer heat was maintained, to infect seven non-immunes extraordinarily exposed to said fomites. In a second trial the following September and October, 1901, under like favorable conditions, eight non-immunes also escaped infection. These negative results in two trials, involving fifteen non-immunes, have been confidently claimed to be conclusive of the impotency of fomites ever to infect; and this claim has been as confidently denied, because, as is said, of many facts explicable by fomites but inexplicable by the stegomyia.

Fourth—Disregarding filth and fomites, because two years of warfare against them had proved ineffectual, and limiting sanitary measures solely to excluding imported cases, to isolating every home case that did occur and to preventing in every possible way the access of mosquitoes—these measures were followed in Havana by the total disappearance of all home cases from Sept. 28, 1901, to May, 1903.[1] Note in this connection that not less than eight cases have been imported during this time, but these cases have been isolated and carefully protected from mosquitoes, and that there have been in Havana an abundance of non-immunes. Now these four facts, introduction of imported cases, presence of many non-immunes, protection from mosquitoes and freedom from yellow fever in Havana, annually infected for at least 140 years, and monthly certainly for forty-five years and probably longer, were either cause and effect or the most extraordinary coincidences in the history of yellow fever. The more numerous such coincidences may become the stronger the proof of cause and effect. Several such coincidences have already been reported, viz., at Las Animas Hospital, Havana, 1899 and 1900, at Las Vegas, 12 miles from Havana, 1901, and at Havana, 1901, 1902 and to May, 1903.

Further, freedom from yellow fever, though stegomyiæ were present, would not be conclusive evidence against them; though present they might not be infected; and, if infected, very many would die prior to the twelve days requisite to become infective, and those that lived long enough to become infective might fail to gain access to non-immunes, and such failures would be the more probable the more numerous the immunes. Still further, the following reports are suggestive. It is now generally conceded that without anopheles there is no malaria. However, localities are reported from Italy, France and other countries where, although malaria once prevailed, it no longer occurs, and yet this failure to occur coexists with the annual importation of malarial cases and the continued presence of many anopheles. And a locality is reported in England where anopheles refused to suck man's blood.

The case of fomites versus the stegomyia is of the utmost importance for prevention and commerce and now deserves consideration. The only advocates of fomites known to me who have published their views are two distinguished sanitary officers, having much knowledge of and experience in yellow fever, Dr. John H. Purnell of Mississippi and Dr. Edmond Souchon, president of the Louisiana State Board of Health. The arguments of one or the other, to prove that the stegomyia is not the sole cause, but that fomites are also a cause, will be summarized also under four heads.

First—It is claimed that the freedom of Havana from yellow fever in 1901 and 1902 was not due to the warfare on mosquitoes, but to the rigid exclusion of imported cases and to the dying out of the disease. In support of this claim there is some evidence that other Cuban cities escaped yellow fever without effective warfare against mosquitoes. But, even if this evidence were indisputable, there are good reasons for believing that imported cases were excluded, that any cases that did occur were isolated and access of mosquitoes to them was prevented, and that these cities had very few non-immune inhabitants. For such reasons these cities may have escaped yellow fever consistently with the stegomyia theory, although these cities may have failed to wage effective warfare against mosquitoes.

The tendency of yellow fever, as of other infectious diseases, to die out, in spite of the coexistence of some cases and of many non-immunes, has been manifested many times even in the distant past, when imported cases were not excluded and when there was no warfare against filth, fomites or mosquitoes. A cause of this tendency of yellow fever may be a scanty reproduction in some years of the stegomyiæ, as occurs with other insects. In spite of this tendency, it is certain that this has failed for 140 years to manifest itself in Havana to an extent at all comparable with the remarkable cessation of the disease since warfare against mosquitoes was begun. Hence, the extraordinary escape of Havana, the worst and the longest infected city in the world, inclines the probabilities strongly in favor of the claim that its rescue from yellow fever is due to warfare against the stegomyia.

Second—The frequent return or recrudescence of yellow fever six, twelve or more months after a cold winter and without the reintroduction of the infection, is incompatible with our present knowledge of the duration of life of the stegomyia. The greatest duration yet reported was found by Dr. John Guiteras in 1902. Of eleven infected stegomyiæ two died by the tenth day, five were dead by the sixty-fifth day, and of the remaining six the last one lived to its one hundred and fifty-fourth day. It deserves special notice that 18 per cent. died before the twelfth day, i. e., too soon to have become infective, and that this mortality occurred in captives well protected from the many enemies mosquitoes are exposed to in the open. Dr. H. A. Veazie has reported that of one hundred New Orleans mosquitoes one-half died in the first week and only two were alive on the thirtieth day. Manifestly a mosquito's life will vary with its protection from enemies, with its food, temperature, light and other variable conditions. How long an infected stegomyia may possibly live under the influence of hibernation and other exceptional conditions is yet to be determined. However, Dr. John Guiteras[2] has reported that of thirty-three female stegomyiæ kept in an icebox at 40 to 50 F., and without food or water, three lived to the eighty-seventh day and were then destroyed by ants.

My consideration of recrudescence will be limited to criticisms on one example cited oftenest, cited recently by Dr. Purnell and by Dr. Souchon, cited also by Dr. Sternberg and by myself in 1880, when, however, every one believed in fomites and no one in stegomyia. Hence,

1. The warfare against mosquitoes in Havana was begun Feb. 27, 1901; preventive measures against filth and fomites were abandoned July 1. There were twelve deaths in January and February, but only six deaths March 1 to Sept. 28, 1901, and none since; with the sole exception that of seven *imported* cases of yellow fever in 1902, two died.

2. Revista de Medicina Tropica of Havana, April, 1903.

my reinvestigation of the supposed recrudescence in Memphis in 1879, after its epidemic of 1878, the most fatal one, proportionately to population, ever in the United States.

The best authority for this recrudescence was Dr. G. B. Thornton, the thoroughly trustworthy president of the Memphis Board of Health. He reported[3] that the first case was attacked about the 5th, was reported on the 8th and died the 9th of July; that, although in all preceding epidemics the first case was known to have been imported from New Orleans, yet in 1879 no such case was discovered; and further, that yellow fever was not then "prevailing" in any part of the United States. From these premises Dr. Thornton and most of the medical profession concluded that the disease was due to "local origin," which, in this case, meant to houses and their contents infected in 1878, i. e., to the recrudescence of the dormant vitality of infected fomites. A conclusion in full accord with the professional opinion of 1879.

To these facts and to this conclusion I now add, for the first time, I believe, in this connection, the three following facts: Dr. W. L. Coleman,[4] an inspector of the National Board of Health, maintained that the disease was certainly due to a fresh importation of fomites, viz., to two box-cars of bananas from the West Indies, via Havana and New Orleans, that arrived in Memphis prior to July 4, 1879. Further, Dr. Thornton's final conclusion was that "the disease may have been imported. If such was the case, the epidemic was, in my opinion, due to two causes, importation and local origin." Still further and more important, while it was correctly stated that yellow fever was not "prevailing" anywhere in the United States, none the less it did exist in New Orleans, as proved by the annual report of the Louisiana State Board of Health for 1879, wherein is recorded one imported case, March 26, one home case on the 16th and another on the 17th of June. Evidently, then, there was time sufficient for stegomyiæ to be transported, by the open communications then existing, from New Orleans to Memphis to infect the first case reported in Memphis. These facts prove that this alleged recrudescence might have been due to stegomyiæ and not to fomites. Conjoin the indisputable fact that the first cases reported in New Orleans have often not been the first that occurred and the case of the stegomyia becomes still stronger. It is doubtful whether, if all the facts could be known, other instances of recrudescence by fomites would not become as questionable as the most often cited of all instances, Memphis in 1879.

Third—In behalf of fomites it has been urged that non-immunes in camps of refuge, infested by mosquitoes and near infected cities, have been kept free from infection by the destruction or disinfection of fomites. This conclusion is very far from proven. Such cases of the disease as were imported were usually promptly isolated; quite possibly there may have been swarms of mosquitoes, but no stegomyiæ, for these seem to prefer houses and to "shun rural districts and open fields"; and there may have been stegomyiæ but none infected. Further, New Orleans could furnish many instances of adjacent places in the country, and of hospitals, asylums, jails and convents within the city, into which places cases of yellow fever were introduced but failed to originate any cases though fomites were neglected. Such exemptions occurred frequently in the distant past, when no efforts were made either to isolate the disease or to disinfect fomites. It seems to me that all such exemptions are more explicable by the absence of infected stegomyiæ than by the fomites theory.

Three instances, often cited, of exemption from yellow fever will illustrate the claims of advocates of fomites. In 1878 many hundreds of refugees fled from Memphis to Camp Joe Williams, four and a half miles distant. Fomites were destroyed or disinfected, and although there were imported into this camp 186 cases of yellow fever, of whom 58 died, yet no cases originated in this camp. However, Colonel Cameron,[5] commander of the camp, reported the following facts: "Four grave diggers and one carpenter, on constant duty at the hospital carrying the sick, washing the bodies, sleeping on infected bedding, in tents, wearing clothing stripped from the bodies of deceased, remained on said duties seven weeks with perfect impunity from attack." "None had previously had fever." Now if many refugees owed their escape from yellow fever to destruction of fomites, what protected these five non-immunes from fomites not disinfected?

The epidemic of 1878 in Memphis, with not one-sixth the population of New Orleans, caused over 5,000 deaths, while there were less than 5,000 in New Orleans. However, in 1879 Memphis had "1,532 cases and 485 deaths" by yellow fever, while New Orleans had only 48 cases and 19 deaths, and 34 of these cases and 12 deaths were restricted to a limited section of the city. Now this comparative exemption of New Orleans was claimed to be due to the vigorous co-operation of the state and national boards of health and the Sanitary Association in the repeated cleansing and renovation of infected places, in thorough disinfection and in the sulphur fumigation of houses.

Further, in 1882 there were only four reported deaths in New Orleans, and this comparative exemption was claimed to be due to thorough cleansing and disinfection of the section surrounding the focus of infection "for at least four blocks each way around the focus." Now, it is notable that in the last two instances sulphur fumigations were vigorously applied—the very remedy specially recommended to destroy stegomyiæ.

Fourth—Reported cases of two kinds have been urged as explicable by fomites, but inexplicable by stegomyiæ. Some cases of yellow fever have been reported where the possible infection of stegomyiæ and the transfer of the infection to the person attacked gave intervals of only 8, 9 and 10 days instead of the least interval of 12 days found in the twenty experimental cases. More experimental cases might have proved the possibility of a less interval than 12 days, but a more serious criticism is that the briefer intervals were based on supposed knowledge of what was the very first case, very often too doubtful to justify a final conclusion.

Numerous other cases are reported to have followed, within the usual period of incubation, exposure to fomites under conditions such that the presence of any infected mosquitoes was highly improbable if not impossible. In some of these cases the disease was limited to the few non-immunes exposed to the fomites, while other non-immunes in the very same house were not attacked. In such cases it is a notable and suspicious fact that even the fomites from those attacked failed to infect the other non-immunes in the same house.

All of these reported cases, as well as some other issues, are amenable to the two following criticisms: Every

3. In Vols. v and vi, Transactions of the American Public Health Association and in recent letters to me.

4. See "Yellow Fever and Dengue," by W. L. Coleman, M.D., pp. 100-2.

5. Transactions of American Public Health Association, p. 155, vol. v.

reporter seeking a cause is not only apt to find it in whatever may be universally admitted to be a cause, though not one, but is also apt to overlook a universally unsuspected cause, though this be the true one. There have been many reported cases of disease explained satisfactorily to reporters and their readers by witches, the moon, comets, bile, urea and other erroneous causes. Without anopheles malaria does not occur, yet the very word falsely assigns bad air as the cause, and this disease has also been often attributed not only to bad water, but also to watermelons, and these causes have been maintained by evidence satisfactory to reporters and their readers.

Many cases of yellow fever in adults, many more in children and negroes, can not be diagnosed by the best experts, and much more numerous must be the cases undiagnosable by the great majority of physicians who are not experts. Over fifty years' study of yellow fever, eight of these years living day and night in the hospitals of New Orleans, when the disease annually prevailed, and six more of these years employed as a United States sanitary officer specially for yellow fever, and given unusual opportunities for investigation, would justify me in swearing in court that the first cases officially reported in a civil population are very often and, as I believe, usually not the first cases that occurred. This is due not merely to diagnostic deficiencies, but also to two other causes, viz., lack of opportunity among the numerous poor unvisited by a physician, and the very frequent neglect of physicians to report their first cases, even when diagnosed. This neglect is due to their unwillingness to become, in public estimation, odious alarmists and also to subject their patients and the families of their patients to disagreeable notoriety and often to legal restraint by sanitary officers. Practical sanitarians are forced to recognize that the more the financial welfare of the public is threatened by the invasion of a communicable disease and the greater the legal restraint imposed on the public and on the sick and their families, the fewer will be the cases reported. For reasons now stated conclusions based on supposed knowledge of first cases are often untrustworthy.

Three more sets of facts pertinent to my subject deserve brief attention. Dr. H. R. Carter,[6] the author of the best summary known to me of arguments in favor of the stegomyia, urges this very weighty generalization. He claims that every disease having an intermediate host is propagated solely by its special host and never by fomites. Though convinced that present knowledge favors this generalization, I doubt whether we yet know enough to justify a final conclusion. In any case, claims for the infectivity of fomites would be more explicable should knowledge enlighten our ignorance in the following particulars.

Of these diseases malaria and the Texas cattle fever spread by a special tick, are best known in our country and most resemble yellow fever. It deserves note that the tick fever, besides other resemblances to yellow fever, has these two striking ones, the young have usually very mild attacks and an attack confers immunity. Now, the infecting germ persists in malaria often for months and years and in cattle fever probably for life; and this long persistence of the germ in healthy immune cattle caused until recently the erroneous belief[7] that infected ticks infected their own eggs. However, my present point is that while the blood in malaria and in cattle fever remains infective long after the first attack has ended, yet the twenty experimental cases indicate that the blood of a yellow fever patient is infective during only the first four days of the attack. The lack of resemblance thus indicated justifies the suspicion that a closer resemblance may yet be proved. A ray of light may yet be found in Finlay's belief that in malaria man is the permanent and anopheles the temporary host, while in yellow fever man is the temporary and the stegomyia the permanent host.

Further, Dr. Patrick Manson, one of the best authorities on malaria, gives good reason for his beliefs, that the malarial germ may have other host than man, and that this germ may be deposited in the soil, inhaled in dust and thus cause the disease. And many good observers still maintain that drinking water may become infectious by the dying therein of infected mosquitoes, as is still taught by some to be the case in filariasis. Still further, Dr. Carlos J. Finlay believes that the fresh blood of yellow fever on the proboscis of a stegomyia can infect a non-immune within the usual period of incubation, while the germs within the stegomyia would require twelve or more days to become infective. I have now indicated five particulars, as to which future knowledge may throw light on the causes that have led to belief in fomites.

The history of the remarkable change of view in New Orleans as to belief in fomites is instructive. A great majority of its physicians, myself included, firmly believed, until at least 1867, that yellow fever originated in this city as was then universally claimed as to other habitually infected cities, and all of this great majority unhesitatingly testified that they had never observed a single case either of direct contagion or of infection by fomites. As steamboats and railroads multiplied and many adjacent places on the routes of travel became infected after outbreaks of the disease in New Orleans, the conviction gradually gained ground that yellow fever did follow the routes of travel and was an infectious disease. Then followed numerous reports that some places on these routes had not had any case of yellow fever introduced therein, certainly the usual precursor of an outbreak, but that fomites had been introduced. Our imaginations failed to invent any explanation for these credited reports except infection by fomites. However, this concession to fomites was made very grudgingly, because New Orleans physicians could not ignore their innumerable experiences of the failure of fomites to infect. Hence the hypothesis invented to explain these credited reports was that, while fomites were usually innocous yet that under the rare influence of some unknown mysterious conditions fomites did become infectious.

For such reasons I, as soon as convinced that mosquitoes did follow the routes of travel and that the stegomyia was a conveyer of yellow fever, embraced the stegomyia as a welcome substitute for those unknown mysterious conditions about which I have wasted, as I now believe, many weary hours of study; and I earnestly hope that the future may permit my brain to rest in peace with the comprehensible stegomyia—unvexed by the incomprehensible, mysterious hoodoo, fomites. I, like others, have advocated fomites, always, however, citing my authority. For my part, I have never secured satisfactory proof of a single case either of direct contagion or of infection by fomites. I have investigated reported cases of infection by fomites, and I have known several cases, supported by very strong evidence, which, after laborious investigation, were conclusively traced to

6. Bulletin No. 10. Yellow Fever Institute of U. S. Bureau of Public Health and Marine-Hospital Service.

7. According to Dr. D. E. Salmon, Chief of U. S. Bureau of Animal Industry.

a usual cause, viz., to infected houses wherein were women of easy virtue. These had received night visits, carefully concealed and denied by men who, living in uninfected country places, had contracted the disease in said infected houses, and not by fomites in their uninfected country places.

Finally, it deserves consideration in behalf of sanitary officers who hesitate to abandon the disinfection of fomites, that more places than New Orleans have suffered by numerous advocates of innumerable "sure cures" and sure preventives for yellow fever. Notable among these advocates was Gen. Benjamin Butler, U. S. A., in 1862. He, whose memory is still odious in New Orleans, issued in 1863 a pompous farewell address in which he proclaimed: "I have demonstrated that the pestilence can be kept from your borders." His sure preventive was cleanliness, enforced by sanitary regulations, executed by an efficient sanitary police. However, conjoined with this sure preventive the U. S. Navy effectually blockaded New Orleans. General Butler's sure preventive was heartily indorsed by many medical officers of the Army, by northern physicians generally, by public and medical press and by many eminent sanitarians. Among these was Dr. Elisha Harris of New York, who had held several of the highest positions as a sanitary officer and became a president of the American Public Health Association. His advocacy was so conspicuous and enthusiastic that I replied to General Butler's claim[8] and closed with this question, which has never yet been answered: If New Orleans was saved from yellow fever by General Butler in 1862, when there were two reported deaths, who saved New Orleans in 1861, when there was not one reported case or death, and when blockaded New Orleans was occupied by General Lovell and his very many non-immune Confederate soldiers, who enforced no preventives of any kind?

CONCLUSIONS.

My reasons have now been indicated for the five following conclusions: The probabilities now are that the stegomyia, the only cause yet proven, is the sole cause for the dissemination of yellow fever; but that time is required to convert these probabilities into certainty. Boards of health, should they neglect any practicable measure of warfare against the stegomyia, would deserve the severest punishment of the worst criminals. Southern boards of health are excusable for over-precaution against yellow fever. States adjacent to Louisiana have power, by sanitary restrictions, to strangle the commerce of New Orleans and Louisiana should not abandon the disinfection of fomites until approved by said states. Boards of health are representatives of the people and are justified in continuing to disinfect fomites as long as public opinion may favor this measure and until the probability of its inutility is converted into certainty.

To my many friends who urge that Mrs. Stegomyia has inherited all the claims of her father, Mr. Fomites, who is dead and ought to be buried, I tender the advice given at a numerously attended funeral by the undertaker: "Gentlemen, gentlemen, please don't crowd the mourners"—mourners over the remains of Mr. Fomites!

DISCUSSION

ON PAPERS OF DRS. CARROLL AND CHAILLE.

DR. EDMOND SOUCHON, New Orleans—It is impossible not to be deeply impressed by the reading of the experiments made by Reed and his associates in Havana. The simple, direct, positive, American-like manner in which these experiments were conducted can not but fill our minds with noble pride, as scientists, as men and as Americans. As such I would most probably have joined also the army of followers that have been conquered by the immortal Reed, but as the responsible officer of the Louisiana State Board of Health, the duty of which Board is to guard the valley of the Mississippi against the introduction of contagious diseases, I am compelled to carefully examine into every point, and to submit all the statements, past, present and future, to the crucial test of the Pasteur law, in accordance to which no facts should be accepted as thoroughly proven until all possible means to disprove them have failed. It is because Pasteur applied this law to his own work that not one of Pasteur's statements has ever been refuted.

At the outset, kindly note the words "responsible officer." The sense of responsibility for the awful consequences of possible errors changes the whole aspect of questions. The irresponsible ones are always quick to urge on. When they meet with reverses they naively say that they never would have thought that possible, and that is the end of it.

But when responsible officers have to face the introduction of contagious diseases, the press, the people, the authorities, all unanimously shout that they should have known better, should have been more prudent and more slow in applying new theories; and general condemnation is forever attached to their fair names. But a few years ago all these tragic events were enacted in this very city.

Then, there comes in also the overpowering consciousness of the dire calamities, the sufferings, the anxieties and the sorrows of sickness and the deprivations and ruins or quarantines. All this is properly calculated to cause responsible officers to be doubly careful before making any changes in quarantine regulations which may be followed by pestilence and quarantines.

The factor of responsibility is well illustrated by the following anecdote: A very high health official once had presented to him for signature a telegram relating to a very important quarantine matter. The chief scanned the prepared telegram most carefully, then said to his assistant that since he had charge of that department to sign the telegram himself. The assistant retired and it took him two hours to find the wording of a telegram which he would sign and be responsible for the consequences. On going over the records of all the quarantine stations, state and federal, to which he could have access to and also over the scanty literature on the subject, the writer of the present was confronted with a number of cases of yellow fever where it was impossible for him and his responsible colleagues to see the intermediation of the mosquitoes, bearing in mind the fact that the mosquito does not live more than five days without water in the summer months.

We have collected 27 such cases in the meager literature of the day. Some are land cases and some are shore cases. However much I would like to read some of them to you, the time allotted me will not permit.

If such cases have been observed there have surely been many which have not been recorded. If such cases have presented themselves in the past, similar cases may again present themselves, and how can we safely ignore them in our quarantine regulations until they have been explained satisfactorily to the responsible officers.

To say that these cases are errors of diagnosis is begging the question. Reasonable men will admit that some of the cases may have been diagnosed wrongly, but reasonable men will also admit that it is unreasonable to say that all the cases were mistaken cases.

The first and foremost perplexity of the responsible officers was the question of the treatment of fomites. From the known experiments made by Reed and Carroll, Guiteras and Ross, it is contended that the disinfection of such is unnecessary. To these experiments the responsible officers oppose the fact that they were made at a time of the year when yellow fever is not at its worst, except perhaps the early experiments of Ross.

Then we must consider that 30 per cent. of the non-immunes bitten by infected mosquitoes did not develop yellow fever. It

8. In the New York Sanitarian, August, 1882.

is, therefore, unreasonable to expect that all experiments made with fomites should develop yellow fever. Beside, these experiments with fomites were made by men; men of recognized ability it is true, but human all the same, and they may have overlooked some factor.

We hold that the cases reported of transmission of yellow fever without the intermediation of the mosquito are truly experiments made by Nature herself, and she surely has overlooked no factor.

A noted sanitarian mentions the fact that a large amount of fomites went from Cuba to New York and to Spain after the Cuban War and that no yellow fever developed in either country. But these countries are places where yellow fever develops with difficulty. If that baggage had come to New Orleans, Galveston or Mobile and no harm followed, that would mean something, but as it is it is of little value.

The responsible officers do not contend that it is fomites that transmit yellow fever. They modestly say that they do not know; that it may be some means of which no one thinks now until some day someone comes up against it as they did for the mosquito.

The evolution of the mosquito theory and demonstration has required nearly a quarter of a century and it may take also a long time before it is demonstrated that there is another means of transmission, as the facts related above strongly point.

To those who say that the mosquito was present outside of the baggage or fomites but was not observed because no one at the time thought of them or looked for them, the responsible officer replies that at present the mosquito partisans see mosquitoes everywhere, even where they are not.

We are told that the mosquito is the host of the yellow fever germ and that it is transmitted through the saliva of the mosquito; but this has never been proven since that germ has never been seen by anybody.

To the explanation that the mosquito being the host of the yellow fever germ it can only be transmitted from man to mosquitoes and from mosquitoes to man, the responsible officers reply that that would be true if it were demonstrated that the germ of yellow fever is an animal parasite, but this is yet to be done. No one knows if it is an animal or a vegetable germ. If a vegetable germ it can be transmitted in several ways. This is the law of Nature.

A noted sanitarian of the United States Public Health Service states that of such diseases as have been fully investigated, all that are conveyed from living hosts are carried by animal parasites. How about the plague whose germ is a vegetable organism and which is transmitted by animals it is true, but also by the air and by the food?

A good deal of stress is laid on destroying mosquitoes on board of all vessels, non-infected vessels as well as the infected ones. The truth is that the mosquitoes on non-infected fruit vessels are a very small factor in the transmission of yellow fever because the proportion of the stegomyia is only 2.5 per cent. That this small number is unimportant is borne out by the fact that the absence of yellow fever in the Las Animas Hospital before the mosquito era was explained later by Havard and Guiteras by the small number of the stegomyia found when the mosquitoes of the hospital were destroyed. Beside, the mosquitoes on board of non-infected fruit vessels are not infected. If they were there would have been more than one case of yellow fever not traceable to the shore in fifteen years on more than 1,000 fruit vessels. And there would have been yellow fever in New Orleans from 1886 to 1896, during which time 50,000 laborers were exposed to mosquitoes while unloading fruit vessels before the fumigation of the holds.

The fact that a number of vessels without yellow fever at the port of departure or en route or on arrival at the home port have developed yellow fever after having been disinfected, points out also that there must be another means of transmission of yellow fever than the mosquito. Some of these vessels were many days out before arriving at the home port. If there were any infected mosquitoes on board they must have been well concealed that they did not bite anyone. Then how could they have lived without water, since they do not breed in bilge water or in sea water. There are many other contradictions, inconsistencies to cause perplexities, but we have no time here to dwell on them. In conclusion we will say that for the present and until further progress the responsible officers are unwilling to make any change in the quarantine regulations against yellow fever. They consider the question still under study and requiring more time and demonstration. Many believe, and the writer among them, that the demonstration of the unity of cause of transmission will most likely come, but it has not as yet arrived. Too many new ideas have been adopted, to be later exploded, not to cause responsible officers to move slowly in such momentous matters. Public opinion will require convincing proofs to stand by its quarantine officials when important changes will be proposed and specially put into practice.

The International Sanitary Conference held in Washington last December recognized that there were still some doubtful points regarding the transmission of yellow fever and that quarantine regulations should not be changed until further demonstrations.

Even if it should be demonstrated to the satisfaction of the responsible officers that the mosquito is the sole transmitter of yellow fever and that fomites truly do not convey it, the only difference it will make in the quarantine regulations is that the baggage, bedding, etc., shall not be subjected to disinfection and that the forecastle of vessels shall not be washed with bichlorid. The vessel shall have to be disinfected to destroy what mosquitoes are on board, and the crew and passengers shall have to be detained to make sure that no one is in the period of incubation. It is but little trouble to disinfect the baggage and bedding of a vessel compared to the possible results of the dispensation of it before more positive evidence shows that it is safe to do so.

Responsible officers are unwilling to run the risk of an epidemic with its consequent quarantine to prove that there is no other means of transmission of yellow fever except the mosquito. The needed further demonstrations will have to come some other way.

DR. QUITMAN KOHNKE, New Orleans—New Orleans is the most important city of the South, and the most important in this country in relation to yellow fever infection. Whenever yellow fever occurs in the South, New Orleans is accused of being the first city infected and the city from which it spreads.

We of New Orleans believe that yellow fever is always imported, and that, if recrudescence is at all possible, it occurs but seldom; we are, therefore, intensely interested in quarantine against yellow fever, though deprived by law of the power of quarantine, this authority residing in the State Board of Health of Louisiana.

I want to say here, to remove an erroneous impression, that no antagonism exists between the health authorities of the city and those of the state, save only that antagonism which may properly exist between two persons, differing in their views, but both tending in the same direction and both seeking the essential truth and the maximum protection which its application to preventive measures will insure to our people.

I may say, for instance, that I agree with Dr. Souchon in his determination to disinfect, for a while longer, for fomites for the sake of public opinion, the perfection of safety and the avoidance of injurious criticism (as Dr. Chaillé suggests); and I hope Dr. Souchon will agree with me in believing that the disinfection for mosquitoes should also be above criticism, and should be as thorough as it can possibly be made.

The recorded incidents of our quarantine history give us strong evidence corroborative of the mosquito transmission of the disease. Quarantine against yellow fever became practically effective only after the adoption in 1874 of Dr. Perry's method of sulphur fumigation of the holds of vessels, arriving from yellow fever ports. Mosquitoes were destroyed by this process, and the efficiency of the method was strikingly emphasized by the omission (by Dr. Perry's successor) to sulphur

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fumigate a vessel, on which, in consequence of this omission, yellow fever developed while the vessel was at wharf in this city; the vessels treated by Dr. Perry's method having escaped this experience.

I may express my views on this subject as the health officer of New Orleans in language previously employed for a similar purpose and say that, omitting from consideration the proper detention of inoculated persons, I believe firmly that all quarantines against yellow fever in the past, in so far as they have been successful in preventing the introduction of the disease, have been so because they prevented the entrance of infected mosquitoes. Whether this has been accomplished by a detention for a period longer than the life of the mosquito, or by the destruction of the insect in some other way, the achieving result has always been the excluding of infected mosquitoes.

The vagaries of the quarantine service, fluctuating from one extreme to another, actuated now by an exaggerated fear of infection, and again by powerful influences directed, perhaps unwittingly, to the interests of commercial circles, may well account for some of the phenomena of yellow fever visitations improperly attributed to other causes.

The recorded observations of men who knew nothing about the mosquito transmission of yellow fever form a chain of circumstantial evidence leading to conviction.

We have in New Orleans two abominations, of which we hope soon to be rid—the cistern and the water closet, both situated in the rear portion of our resident premises.

It has been observed that yellow fever travels from house to house more frequently over the back fence than to the side neighbors, and the close relationship between rear premises has for years been a matter of puzzling speculation. It is easily explained now by the mosquito theory. Cisterns are breeders of mosquitoes (stegomyia), and to the cisterns mosquitoes naturally go to obtain water. Some of these mosquitoes being infected it is easily supposable that they will fly from the cisterns or closets to the nearest neighbor, whose house may front on a street considerably distant from the previously infected house. It has also been observed in the past that the period of time intervening between house-to-house infection was in many instances about two weeks; this corresponds, also, to the mosquito transmissibility of yellow fever; and many of the recorded facts, other than these, and puzzling at the time of their observation, are made clear by the application of the mosquito theory to the otherwise unexplainable incidents.

The accumulated records of the past, viewed in the light of present knowledge, seem like a deliberate gathering of evidence against the mosquito; even before the thought of an indictment was entertained by those who laboriously and conscientiously (though not understandingly) piled up the mass of corroborating evidence, supporting the charge against the female stegomyia of transmitting yellow fever from one victim to another.

DR. FELIX FORMENTO, New Orleans—Two years ago, at a meeting of the Public Health Association, which met at Buffalo, N. Y., a discussion on this subject took place in which Dr. Reed partook, a man who no one admired more than I did. The real subject for discussion was the communicability of the disease and the views that I then took are those that I take at the present time. It was then stated that communication occurred only through the bite of the mosquito. I think that the admirable work and the results of the work of the American physicians in Havana have demonstrated that this disease is communicated by the bite of the mosquito. It has not been absolutely and positively demonstrated that yellow fever can not be communicated to man except through the mosquito; there have been cases in which the prevalence of the disease can not be explained by the mosquito theory.

A few years ago a trunk belonging to an officer from Havana was sent to Madrid. Several months later the trunk was opened, being several months after the death of that officer from yellow fever. It was soon after noted that members of that household, in which the trunk was opened, were taken down with yellow fever. There are other cases reported which seem to prove that there are other means of communication of this disease.

I think we should be more careful about laying aside such evidence. I have studied this disease since 1861, and there are many points regarding this disease that still are very obscure. During the past 12 years there have been no cases of yellow fever in New Orleans, where everything has been done against the mosquito. Cases have occurred at Vera Cruz and at Havana, but none have occurred here.

Formerly there was great opposition to quarantine being established and once it was asked that it be abolished; believing that the mosquito was the ordinary means of communication of this disease it was decided not to take such a decided measure as abolishing quarantine. I believe that we should be a little conservative in this direction.

DR. C. W. STILES, Washington, D. C.—I do not think there is anything strange about the conservatism that is found in New Orleans, as expressed by Dr. Formento; I should be surprised if it was not so. It is evident that the spirit of fairness that has been exhibited by members of the Association in New Orleans shows that the slight differences which they may have had is really ephemeral in nature.

There are certain biologic facts that should be considered in yellow fever. We all know that the cause must belong to one of three different groups, as follows: 1, bacterium; 2, flagella; 3, sporozoa. The entire nature of the disease, together with the short period of incubation, shows that the organism is reproduced by a non-sexual method and there are only three groups of organisms which reproduce in this way. The bacterium seems to be excluded because of the short period of incubation in the mosquito. Regarding the flagella nothing is known regarding its sexual development, but if there is any form of flagella that is reproduced by the sexual method, and if it is a cause of yellow fever, we must then admit that it is necessarily a wound disease. But we do not know any flagella in existence which can transmit the disease in this way. The only organism which corresponds to what we expect the parasite should be, then, is the sporozoa. This organism is non-sexual. In every case the organism must pass through a definite and regular rotation.

Either yellow fever is caused by the sporozoa, or else it is caused by one of the other two mentioned; if the latter exist it must then be a coincidence. Then this period of incubation of 13 days means nothing at all. I prophesy that the disease will be shown to be a sporozoa disease and all differences of opinion will die out entirely so soon as this is shown to be the case.

DR. JAMES CARROLL, U. S. A.—I did not expect for a moment that my ideas would meet as much sympathy as is shown. We certainly appreciate the full responsibility that rests on the gentlemen who conduct the hygienic and sanitary affairs necessary to protect New Orleans from yellow fever. I wish to again make the statement that there is no other source of infection possible that has been proven. We have proven that this disease is transmitted by the mosquito. We have also proven that the disease is *not* transmitted by fomites.

When you consider the conditions under which the experiments were conducted at Havana one must be much impressed with the accuracy of them. Three non-immunes entered a building in which there were several articles of bedding, etc., which had been infected with the discharges of blood and fecal matter, urine, etc. They remained there during the night. In the morning they removed the articles from the ward, shook them and then repacked them in boxes. This routine was carried out every day for 20 days, when they came out in perfect health. Following them two other non-immunes entered. They slept there for 20 days and nights. They slept between sheets which had been used by fatal cases of yellow fever. In fact, everything imaginable was done to infect those men, and they would have become infected if such thing had been possible by such means. They, too, came out in perfect health. Other sets of non-immunes were tried. Even blood was drawn from infected patients and towels were

soiled and these men slept with their heads between these bloody towels. They, too, came out in perfect health. Gentlemen, I believe positively that fomites are perfectly harmless. The material was kept there for several months and then removed without any precautions, sent to the laundry, and no one who handled them contracted yellow fever. Of 7 individuals experimented on, four subsequently contracted the disease from the bite of the mosquito and the subcutaneous injection of infected blood. There was no question as to the susceptibility of those infected. All were Americans. These experiments were reported in 1900, in August, by Drs. Guiteras and Ross, and another physician of Havana, and all with the same results.

After such experiments I contend that the burden of proof rests with the other side. On those who decline to accept this practical demonstration rests the burden of proof, and they must prove that the disease is transmitted in some other way. If it can be proven that the disease is spread by fomites we are willing to yield. I do not believe there is any doubt that our results will be confirmed, as they have already been so far by certain investigators. It has been found that those who suffer from the disease can be handled with impunity by nurses without any extension of the disease. Personally I believe that if there was no quarantine and no disinfection the disease could be excluded or prevented from spreading by proper precautions. Of course, that would result in placing everyone beneath a mosquito bar and protecting them by wire screens. Then there would be no possibility of spreading the disease. There are no cases of yellow fever now in Havana except imported ones. In regard to Dr. Souchon's statement with reference to the vessels arriving at the port of New Orleans after trips from South America and with the fever developing among the passengers five or six days after arriving at quarantine, they probably were infected after their arrival at the quarantine stations. There is an immense amount of literature on this subject.

COMBINED INTRA-UTERINE AND EXTRA-UTERINE PREGNANCY; OPERATION AND RECOVERY.

G. J. HAGENS, M.D., AND J. J. MOORHEAD, M.D
CHICAGO.

A perusal of the literature and the failure to find the coincidence of intra-uterine and extra-uterine pregnancy mentioned in a number of the latest text-books would indicate that this form of gestation is certainly infrequent.

B. B. Browne[1] gives a report of the published cases, 23 in number, dating from 1708 to 1880, and adds a case operated on by H. P. C. Wilson of Baltimore.

Straus[2] states that no fewer than 32 instances of tubal pregnancy coexisting with intra-uterine gestation appear in literature. In Straus' table the maternal mortality amounts to 14 in the 32, but 10 of the 14 were in cases dating from 1820 to as far off as 1879. In 13 cases both extra- and intra-uterine pregnancies continued to term; in 4 both fetuses were living, and out of these 4 only 2 were cases in which both fetuses were delivered alive, the one normally, the other by abdominal section. But one mother was lost out of these 2 cases. In 3 cases one pregnancy alone continued till term, in 2 it was the normal gestation, in one uterine abortion occurred at the sixth week and tubal pregnancy continued to term. In 5 cases the simultaneous pregnancies were diagnosed before uterine labor or operation. In 9 cases the diagnosis was made after spontaneous termination of the uterine pregnancy. In 6 cases it was not made at all, being discovered at necropsy; in 6 cases it was detected during abdominal section, in 2 after abortion of the uterine pregnancy, in 2 at an abdominal section after abortion, in one after detachment of the placenta from the uterine cavity, while in one intra-uterine pregnancy was not detected until two months after the tubal sac had been removed. This is the only case in which, after that operation, uterine pregnancy continued to term. The child was living and was reared.

1. Trans. Am. Gynec. Soc., 1881.
2. Zeit. f. Geburtsh. u. Gynak., 1900.

Our contribution is as follows:

Mrs. J., aged 33; housewife; married 12 years; mother of five living children; youngest child born three years ago.

Since she first menstruated, at 12 years of age, this function has been regular and painless. Had typhoid fever eight years ago. No definite history of pelvic disease.

Last menstrual period began Oct. 20, 1901; usual duration of five days. One month later she noticed a bloody discharge from vagina. Two weeks later she complained of pain in right lower abdomen, also frequent and painful urination. Treated at this time for supposed bladder trouble. On December 18, while seated in a chair, she was suddenly seized with intense cramp-like pain in right groin, accompanied by cold sweat and faintness. Rest in bed for thirty-six hours afforded relief, although she was unable to perform her usual household duties. Bleeding continued at intervals until latter part of December.

We first saw the patient at 3 p. m., Jan. 31, 1902. About 9 o'clock that morning there occurred an attack similar to that previously described.

Her expression was anxious; she complained of severe pain, paroxysmal in character, located in right inguinal and sacral region. Pulse, 100; temperature, 99.4; respiration, 26. Chest negative. Abdomen distended. On palpation no tenderness except over an area extending transversely from right iliac spine to three inches to left of median line, and upward to a point midway between symphysis pubis and umbilicus. In this locality was felt a mass, slightly movable, regular in outline, giving a flat note on percussion. External genitalia showed usual signs of pregnancy. No hemorrhage. Bimanual examination revealed a soft cervix, not patulous, displaced forward and upward; cul-de-sac and right pelvis completely filled by a swelling, somewhat irregular on lower surface and very tender to touch. No distinct sulcus between the uterus and mass could be determined. The patient at this time was quite restless. Auscultation not attempted.

The clinical history and physical findings led to a diagnosis of extra-uterine with probably intra-uterine pregnancy.

She was taken to hospital; prepared for both abdominal and vaginal section. Under ether anesthesia, examination proved more satisfactory. The swelling seemed to be continuous with the right horn of an enlarged uterus. Incision posterior to cervix, opening of cul-de-sac and base of right broad ligament was followed by a gush of partly clotted blood; placental tissue was punctured, and a perfectly formed fetus extracted by the feet; placenta removed piecemeal. One hand in cavity now felt the womb softened and enlarged in size to that of pregnancy between the third and fourth month. While on the table patient became almost pulseless, requiring vigorous stimulation. Sterile gauze packing controlled hemorrhage. Twenty hours later, following intermittent pains and slight bleeding, a second fetus and placenta were expelled from the uterus. Packing removed on fourth day. The intra-uterine fetus measured 12 cm. from vertex to rump, the extra-uterine fetus 10 cm.

Convalescence was interrupted by a slight elevation of temperature and pulse, beginning on third day and continuing two weeks, evidently due to mild sapremia. Drainage from cavity profuse for several days. Patient sat up in bed on seventeenth day, returning home one week later, the wound having closed. Recent examination finds the uterus in good position, well involuted, freely movable; some thickening of right broad ligament.

In this instance there was a rupture of tube on lower surface; the fetus and placenta developing within the right broad ligament—a true intra-ligamentary pregnancy.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

103 Dearborn Avenue . . . . . Chicago, Ill.

Cable Address . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

SATURDAY, MAY 23, 1903.

THE SURGICAL TREATMENT OF EXOPHTHALMIC GOITER.

The realm of the physician is gradually becoming more and more circumscribed. His domain, or, what he seemed reasonably justified in considering his undisputed domain, is steadily being invaded by the intrepid surgeon. Who, ten years ago, would have thought that nephritis would ever be treated by means other than medical? Chronic endocarditis would seem to be an affection that the clinician would ever claim undisputed right to treat without the aid of the surgeon. Yet Lauder Brunton, a physician and not a surgeon, as a result of experiments on dogs, advances the view that there is sufficient evidence to warrant the surgeon in incising the constricted mitral orifice in cases of advanced mitral stenosis. Who will be the venturesome surgeon to first act on this suggestion and what will be the result? We had thought that angio-neurotic edema was exclusively within the sphere of the physician. Resection of the nerve supplying the affected area has been advocated and even carried into effect with beneficial results in this or a closely allied affection.

Physicians are quite ready to concede that, up to the present time, the therapeutic treatment of exophthalmic goiter has been, on the whole, eminently unsatisfactory. Grünbaum, during the last year or two, has used the serum of thyroidectomized goats in the treatment of this disease. We shall have to await the results of more extended experience with the serum-treatment before passing judgment on it. Considering our demonstrated helplessness in securing any permanent improvement by the medical treatment of Basedow's disease in any large percentage of cases, the physician will welcome the inroad of the surgeon and the results he has obtained in this distressing disease. We are indebted to Professor Kocher of Bern for having conclusively demonstrated that surgical procedures give by far the best results ever obtained in the treatment of this affection.

Albert Kocher[1] has recently reported the cases of Basedow's disease which have come under the observation of his father, Professor Kocher, in his hospital and private practice between the years 1883 and 1899. The series comprises 93 cases, of which 74 were cases of true exophthalmic goiter. What is of especial interest in this monograph is the record of Professor Kocher's results in the operative treatment of this disease. Kocher insists that the operation should not be done when the patient is in the stage of marked cardiac and psychical irritability. Means must be used to reduce these as much as possible first. All the operations were performed under the local use of a 1 per cent. solution of cocain. Altogether, 59 of the 74 cases of true Basedow's disease were operated on.

Four of the 59 cases died with symptoms of tetany within ten days of the operation. Of the remaining 55 cases, 39, or about three-fourths, had unpleasant postoperative symptoms. These consisted of transitory psychical disturbances, irritability, oppression, palpitation, sensation of heat, congestion of the face, general tremor, sweating, vomiting, fever and irregular, frequent pulse; in fact, temporary increase in the symptoms present before the operation. The fever and tachycardia persisted in all the 39 cases. The other symptoms mentioned occurred in the majority of the patients. The possibility that these symptoms were due to an acute toxemia resulting from absorption of certain substances pressed from the gland during the operation is discussed, but a satisfactory explanation for the aggravation of the symptoms is not arrived at. The other 16 patients operated on had no disagreeable after-effects. The results of the operative treatment are satisfactory. Of the 59 cases operated on, 45, or 76 per cent., were cured; 8, or 14 per cent., were decidedly improved; 2, or 3.5 per cent., were only slightly improved; 4, or 6.7 per cent., died with symptoms of tetany after the operation.

In 15 of the 74 true Basedow cases medicinal treatment of various kinds was used. The results, notwithstanding the fact that several of them were mild cases, are in striking contrast to those obtained from operative procedures. In only one case could a cure be said to have occurred, and this was really brought about by the patient developing an intercurrent disease.

Postmortems were obtained in three of the four fatal operative cases. Several factors may have played a part in causing the fatal termination in the first case. There was a persistent thymus; the heart was dilated and there was a fluid exudate in the serous cavities, and the superior cervical ganglion was very much enlarged. In the second case death was found to be due to double-sided pneumonia and pleurisy. The fatal result in the third case was believed to be due to the extreme severity of the intoxication. At autopsy the dilated heart, spleen tumor, jaundice and fatty degeneration of the liver and spleen confirmed this view.

The profession should be familiar with Kocher's brilliant results. Clinicians will welcome the invasion of their territory when results such as these are obtained. A vigorous warning against this operation being undertaken by only the most experienced surgeons must be made, however. Only those who have had wide experience in thyroid surgery and in the local use of cocain should undertake the operation.

1. Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie, 1902, ix, Bd., 1 u. 2 Heft.

THE SEASONAL PREVALENCE OF TYPHOID FEVER AND ITS RELATION TO SEASONAL TEMPERATURE.

The prevalence of typhoid fever at certain seasons has given rise to several explanatory hypotheses. Perhaps the most important of these, and certainly the best known, is that of Pettenkoffer, who tried to establish a relation between the level of the ground water and variations in the prevalence of typhoid. It is true, that at Munich there existed a definite relation between the level of the ground water and typhoid, but, as pointed out in the recent statistical study on temperature and typhoid fever by Sedgwick and Winslow,[1] in most cases it does seem as if the possibility of the influences of temperature had not been satisfactorily excluded. Indeed, there has been no very satisfactory explanation offered of the fact that, in some cases at least, the number of cases of typhoid fever is most abundant when the ground water is lowest, as claimed by Pettenkoffer and his school.

Sedgwick and Winslow have gathered a large mass of statistics from various parts of the world and representing a wide range of climate in order to study what relations, if any, exist between the periodical prevalence of typhoid and temperature. It seems that only few have looked for an explanation of the seasonal distribution of typhoid fever in temperature, and to most of us the fall maximum of typhoid fever has remained a more or less mysterious phenomenon. The curves of Sedgwick and Winslow show a striking parallelism between monthly variations in temperature and the prevalence of typhoid. In northern localities the maximum number of cases of typhoid occurs in September and October. In southern cities, in which there is a milder winter, most cases occur in August and July. In tropical and subtropical regions the typhoid curve rises with the temperature in the spring, falling with it in the autumn, but shows a decrease at the time of greatest heat, due, perhaps, to great dryness or the action of sunlight. In certain cities in which the curves were more or less irregular, special factors may have entered into play that would tend to upset the parallelism between the temperature curve and the typhoid curve, as, for instance, sudden epidemic outbreaks, due to infection of a number of persons at once through some common medium, like milk or water. In such instances curves based on a small number of cases are likely to show irregularities that on superficial view do not harmonize with the typical seasonal curves. In some of the cities furnishing large statistics, such as Chicago, Cincinnati and Philadelphia, the typical curves show secondary elevations, one in December or January, and one between March and May. These rises in the typhoid morbidity are traced by Sedgwick and Winslow to the facts that these cities derive their water from sources liable to surface pollution, and that autumn rains and spring floods may carry into the water supply a larger amount of pollution at these times than at others. Sedgwick and Winslow would explain the reasons for the seasonal variations in the prevalence of typhoid fever and their relations to the temperature in the following way: The bacilli of typhoid fever do not thrive outside the body during colder seasons of the year. Some germs may survive the winter within the bodies of patients, e. g., the urinary bladder, or perhaps in vaults and other depositories where they may be protected from the cold. As the season grows milder the germs that enter the outer world will stand a better and better show to live and multiply and again enter human beings. Naturally this will be a cumulative process. "Each case will cause more secondary cases, and each of the latter will have a still more extensive opportunity for widespread damage. In our opinion, the most reasonable explanation of the seasonal variations of typhoid fever is from the effect of temperature on the persistence in nature of germs which proceed from previous victims of disease."

The data brought together by Sedgwick and Winslow certainly seem to warrant the conclusion that seasonal prevalence of typhoid fever is dependent largely on the influences of temperature on the growth and persistence of the typhoid bacillus. Their study constitutes a valuable addition to our knowledge of typhoid fever. The conclusions emphasize the urgent necessity in cities to "clean up" and to abolish all unsanitary conditions in crowded tenement districts so as to limit as much as possible the chances for typhoid bacilli surviving in our environment. These measures are, of course, only of secondary importance compared with the *sine qua non* for freedom from typhoidal diseases, namely, uninfected water.

1. Memoirs of the American Academy of Arts and Sciences, August, 1902, vol. xii, No. 5.

A NEW CLINICAL ENTITY.

At the meeting of the Association of American Physicians in Washington last week, Dr. Osler presented the salient features of a series of cases which seem to fall under an as yet unrecognized independent symptom complex. Not that cases of the disease have not been previously described by others, but their full significance as belonging to a new clinical entity has not been properly appreciated. The distinctive features of the cases are chronic cyanosis in connection with marked polycythemia—an increase of the red blood cells so far above the normal that the blood count averages 10,000,000, and may go as high as 12,000,000 per cubic millimeter. Notwithstanding the intense cyanosis observed in these patients, which in certain instances makes them absolutely livid in appearance, they suffer but very little, and in some cases, indeed, not at all from dyspnea. The hemoglobin value of the blood is almost proportionate to the number of red cells and runs very high, commonly above 150.

As Osler said, ordinarily when a patient walks without difficulty into a physician's office, yet is suffering from a marked degree of cyanosis, the physician thinks

at once of emphysema. If the condition is evidently one of labored breathing, heart or kidney disease may be the first thought. In some rare cases advanced tuberculosis may be found as the cause of the condition. In the cases constituting the new clinical entity, however, there is no emphysema, no heart disease and only slight albuminuria. The mild renal disturbance of which this is a sign is evidently not the cause of the cyanosis, but a result of the general condition and rather functional than organic, since, as a rule, it is not accompanied by casts, or only hyaline casts, and those not in large numbers. The only other pathologic conditions that are constant in the disease are constipation and an enlarged spleen.

The cause of the affection is not clear. Usually the history of the cases extends back over many years. Dr. Osler's first patient was a physician, whose cyanosis had been a cause of wonder for several years before he came for professional consultation, the thought being that it was probably due to emphysema. It is well known that congenital heart disease producing the cyanotic condition called by some morbus cæruleus, or "blue disease," is most commonly accompanied by a very large increase in the number of red blood cells with a corresponding increase of hemoglobin. Eichhorst[1] refers to some cases of this kind in which the blood count was 9,000,000 and the hemoglobin value above 160 per cent. Some of these cases do not show symptoms in early life, but develop the circulatory insufficiency of their congenital heart disease only with advancing years. Of course, these cases, as suggested by Osler, are at most but analogous examples of cyanosis with polycythemia, and were referred to only as throwing a certain light on the special pathologic condition described by him. None of his patients exhibited any of the cardiac symptoms of congenital malformation, and all had lived well beyond middle life without any discomfort traceable to such a cause.

Curiously enough, after the report of Dr. Osler's cases, in which he referred to previous descriptions of like sets of symptoms in medical literature, and especially to two cases seen by Dr. Richard Cabot of Boston, a number of prominent clinicians reported similar cases that had been under their observation in recent years, though they had not realized the possibility of the independent nature of the clinical symptom complex present. These observers were from various and distant parts of the country, from Toronto, Buffalo and Boston to Los Angeles. It seems evident, then, that as soon as it is realized how definite the new affection is that many other cases will be reported. We shall expect to find in the medical literature of the near future ample confirmation of these preliminary reports. It is evident that there are many such cases in existence, and we may look for examples of this new clinical entity in abundance in the literature of the near future. The suggestion of its independent nature is likely to stimulate clinical observation to the distinct credit of American medicine.

1. Eichhorst, Pathologie und Therapie, vol. I, p. 110 et seq., 1896.

THE REVIVAL OF THE "ST. LUKE'S HOSPITAL" FRAUD.

It is only about a couple of years ago that the notorious "St. Luke's Hospital" diploma mill and general fraud found it expedient to go out of business under special stress of Michigan laws. Now it has appeared again, under another name, it is true, but evidently under the same auspices and general control and with the same policy and fraudulent practices. Since the 15th of May the mail of THE JOURNAL has been flooded with the circulars of the "Christian Hospital," 617 La Salle Avenue, Chicago, sent to it by righteously indignant correspondents. These circulars have all the characteristics of the old St. Luke's Hospital output, the same offers of staff positions, fac similes (reduced) of diplomas, promises of advertisement and offers of commissions on cases sent. The circulars outdo the St. Luke's samples in their unauthorized use of names of prominent physicians, in some cases thinly disguised; among others they brazenly use the name of a noted Chicago surgeon as chief of staff.

In Michigan St. Luke's Hospital flourished under the lack of state laws properly covering the offense of fraudulent diploma selling, and not until the legislature passed an act especially meant to reach it, did the concern succumb. One "Dr." A. C. Probert, who was the real manipulator of the fraud, is also prominent in the "Christian Hospital" literature, if, indeed, he is not the real "it" of the concern. While most of his associates are new, we still see the name on the roster of Dr. Charles W. H. B. Granville, who was the figurehead of the Michigan concern, and who also figured in some legal proceedings elsewhere. The boldness of these impostors in thus coming out under their real names and following the identical methods in which they had been so clearly exposed is rather striking. They probably have reckoned on a similar deficiency in Illinois statutes as that they first profited from in Michigan, and have, it would seem, cleverly timed this initiation of their work to coincide with the end of the legislative session, expecting, therefore, to have a free hand for at least the next two years. If it should indeed so happen that no existing state statute reaches the case, it would seem that the United States postal laws ought to cover such fraudulent use of the mails by such a disreputable diploma-selling concern as well as in the Armstrong case. While we have no sympathy whatever with the medical practitioner whose idiotic egotism is gratified by sticking up such a diploma in his office on the promise of unethical advertisement and exploitation of his patients, we would be glad to see honest physicians relieved from exposure to the insult that such offers necessarily imply. We have abundant evidence that a large proportion of our readers are feeling just that way. Moreover, we want to see justice done and a stigma on the fair name of any city and state where such practices are permitted removed. The sooner the end of the "Christian Hospital" comes the better.

If any of our readers have sent the concern money and have been defrauded thereby we shall be glad to hear from them.

SUPER-SUPERLATIVE FLATTERY.

We like to see the articles of THE JOURNAL quoted and fully credited, but we do not like to see our abstracts abstracted without credit; neither do we enjoy seeing the original matter taken bodily without so much as a thank you. Imitation is said to be the sincerest kind of flattery; actual appropriation must therefore be even super-superlative. Hence, we feel flattered in seeing an editorial which appeared in a recent issue of THE JOURNAL incorporated bodily, with only a dozen or so verbal changes, into an editorial in one of our Eastern contemporaries. We had credited the editor of the *Medical Times* with the ability to write his own editorials.

VACCINATION AND THE ANTIVACCINATIONISTS.

The antivaccinationists and anti-vivisectionists are still using the Cleveland example as a noted instance of the failure of vaccination and the advantages of disinfection against smallpox. It might be well to restate the facts, which seem to have been lost sight of by the general public. The disinfection did not abate the smallpox, but was followed by an epidemic of over 1,200 cases and over 200 deaths, and then Cleveland made up for its laxity by a most vigorous vaccination crusade, with a final result of stamping out the disease. While the anti-vaccinationists will still probably continue to ignore this, it is just as well once more to restate the facts. If there is anything positive in medicine it is that vaccination will stamp out smallpox.

THE IDENTITY OF SYSTEMIC BLASTOMYCOSIS AND THE SO-CALLED PROTOZOIC DISEASE.

American investigations concerning blastomycosis in man, and closely related or identical processes, have reached considerable proportions. This work begins with Gilchrist's description of his first case of blastomycetic dermatitis. Almost two score of similar cases have since been reported and the mycology often clearly set forth. The next important step consisted of the work of Rixford and Gilchrist on the so-called protozoic disease, their results showing the identity of the minute anatomy of the skin lesions in this disease and in blastomycetic dermatitis. However, it seems that Rixford and Gilchrist were in error in concluding that the micro-organism in the protozoic disease is a protozoon, for Ophüls and Moffit[1] demonstrated in a thorough manner that the organism is a mold-fungus. Another important feature is that the fungus of Ophüls and Moffitt, as nearly as one can tell from a published description, is identical with the Oidium hyphomycoide isolated by Ricketts[2] from several cases of blastomycetic dermatitis; Montgomery[3] also appears to have obtained the same organism from a similar case. The apparent identity of the organisms is strongly suggestive of the identity of the two diseases. Of interest in this connection is the report of a case of "Systemic Blastomycosis," by Ormsby and Miller,[4] the infection atrium being apparently in the lungs. Without entering into details it may be stated that the course of the disease and the autopsy findings are identical with those of certain cases of the protozoic disease. The clinical history was very similar to that of generalized tuberculosis, the autopsy disclosing small abscesses and tumor- and tubercle-like formations in visceral organs. In addition, the organism cultivated by Ormsby and Miller from their case seems identical with that of Ophüls and Moffitt. So one could say that either the Ophüls and Moffitt case was one of blastomycosis, or that of Ormsby and Miller was a case of the protozoic infection. The latter authors failed to draw attention to this probable identity in their report. Our obdurate colleagues in Germany probably will continue to consider this disease (blastomycetic dermatitis) the creation of an imaginative (American) mind, until they have succeeded in determining a case in the "Vaterland." A German critic (Kromayer) is able to recognize only one case of true blastomycetic infection in man, and that was a systemic infection described by Busse and Buschke. This position is in part due to the well-known German ignorance of scientific work in America.

1. Philadelphia Med. Jour., 1900, v, 1471.
2. Jour. of the Boston Soc. of Med. Sciences, 1901, v, 453.
3. JOURNAL A. M. A., 1902, xxviii, 1486.
4. The Journ. of Cutaneous Diseases, March, 1903.

Medical News.

ILLINOIS.

St. Francis' Jubilee.—The twenty-fifth anniversary of the formal opening of St. Francis' Hospital, Peoria, was formally celebrated last week.

Smallpox.—There are said to be 20 cases of smallpox at Dalton, and in default of an isolation hospital, guards have been posted at the homes where the disease exists.

Personal.—Dr. Edith Fyffe, Chicago, has returned from Europe.——Dr. Nicholas Senn, Chicago, reached New York, May 15, on his return from Madrid.——Dr. W. G. Willard, Chicago, major and surgeon Illinois National Guard, assigned First Infantry, has resigned.——Dr. Ben D. Baird has been made health officer of Galesburg.——Dr. Alfred C. Phillips, Apple River, was taken ill in New Orleans, May 6, and was removed to the Louisiana Retreat.

Chicago.

Pneumonia Deaths.—This disease caused 172 of the total 586 deaths recorded during the week ended May 16, from all diseases—excluding the 46 from suicide and violence. This was nearly one-third (29.3) per cent. Since the first of the year there have been 2,659 deaths from pneumonia and 1,190 from consumption, or nearly 125 per cent. more from pneumonia.

Increased Requirements.—Rush Medical College, beginning with this summer, will demand 12 majors, in addition to a four years' high school course; one-half of these must be in special preparatory studies for medicine and must include chemistry and elementary biology. In June, 1904, the requirements will be further increased and a year later the completion of the junior college course or its equivalent will be required.

Old Milk and Infant Mortality.—The health department reports 184 deaths of children under 5 years of age during last week, as against 138 during the previous week—an increase of exactly one-third, 33.3 per cent.; and as against 128 in the corresponding week last year—an increase of 43.7 per cent. The length of time between the drawing of milk and its delivery and use is considered a cause. Thousands can not afford ice and preservatives will add to the injuriousness of the milk. The Bulletin of the health department refers to the great improvement in milk quality in the past six years and the lessened death-rate among infants and urges continued enforcement of regulations looking toward pure milk.

IOWA.

New Graduates.—Keokuk Medical College, at its sixty-sixth annual commencement, April 28, conferred degrees on a class of 56.

Personal.—Dr. David S. Fairchild, formerly of Clinton, has removed to Des Moines and has been appointed dean of the medical department of Drake University.

Itinerant Abandons Fight.—"Dr." B. P. Rea, an itinerant medicine man who was indicted a year ago for practicing without license and was fined $300 and costs, gave notice of appeal and threatened to demonstrate the unconstitutionality of the law under which he was convicted, by carrying the case to the Supreme Court. Wiser counsels have prevailed, however, and he has now paid the fine and costs, amounting to about $318.

MARYLAND.

Baltimore.

Want Good Milk.—The new Baltimore Pediatric Club held a meeting, May 21, to launch a crusade for better milk. Addresses were made by Dr. Henry L. Coit of Newark, N. J., and by Drs. Osler, C. W. Mitchell, C. Hampson Jones and Bassett of Baltimore.

The mortality for the week was low, 165, being 15.90 per 1,000, and for the whites only 13.72. Pneumonia caused a large proportion of deaths, 19, being exceeded by consumption by but one. Seven new cases of smallpox were reported and 33 of scarlet fever.

MASSACHUSETTS.

Appointments.—At the Boston City Hospital, Dr. John N. Coolidge has been appointed medical registrar, and Dr. George A. Leland, visiting aural surgeon.

Bequests.—John L. Day, Quincy, left $5,000 to the Quincy Hospital, and the same amount to the Carney Hospital, Boston, and to St. Mary's Infant Asylum.

Death and Infection.—For the week ending May 9 210 deaths occurred, equivalent to an annual death-rate of 18.68 per 1,000. Pneumonia caused 30; whooping cough, 5; heart disease, 22; bronchitis, 6; tuberculosis, 29; diphtheria, 4, and violence, 12 deaths. Of infectious diseases there were reported: diphtheria, 40 cases; scarlet fever, 33; typhoid fever, 16; measles, 31, and tuberculosis, 25.

Tuberculosis Increasing Among Hebrews.—The United Hebrew Benevolent Society, Boston, has discovered that tuberculosis is rapidly increasing among the Hebrews of Boston. The society is taking active measures for bettering the crowded conditions in the midst of which many Hebrews live, and to which the spread of this disease is attributed. Six of the 17 cases reported to them this last year were sent to the Hebrew Hospital in Denver.

Boston.

Boston's mortality for the week ending May 15 was 20.37. The largest elements were pneumonia, 39; heart disease, 26; tuberculosis, 26; diphtheria, 6; bronchitis, 5. The prevalence of contagious diseases is indicated by the report of 38 new cases of diphtheria, 45 of scarlet fever, 18 of typhoid fever and 53 of measles.

Report on Insane.—The trustees of the Boston Insane Hospital report that they have under their care 1,771 patients, of whom only 543 are in the institution directly under their supervision. Several new buildings are being constructed to relieve the crowding here, but the provision is far from sufficient. They urge the great injustice of compelling relatives and friends to travel the long distances necessary to get to the state institutions which are themselves far too much crowded. The net cost per week per patient was $4.05.

MISSOURI.

Baker Retains License.—On April 27 the State Board of Health decided that the charges against Dr. Charles M. Baker of Santa Fe were not well enough founded to justify taking away his license. He was, therefore, exonerated.

Examining Board.—At the session of the State Board of Medical Examiners in Kansas City, April 28, one candidate appeared, was rejected, and the board adjourned. At the previous session, April 1, the board examined 21 applicants.

Medical Student Commits Suicide.—Gaston M. Jordan, Caruthersville, a junior student at Memphis (Tenn.) Hospital Medical College, despondent over his failure to pass the senior grade examinations, committed suicide, April 30, by taking two ounces of chloral.

Leper Found in Laundry.—Dong Gong, the Chinese leper of St. Louis, of great notoriety, who escaped from quarantine two days before, was captured, May 7, in a Chinese laundry. Patrons of the laundry were in great alarm and in many cases are said to have made bonfires of the clothing washed there. The proprietor has been compelled to leave the neighborhood.

NEW YORK.

Graduation Exercises.—The seventy-second annual commencement exercises at Albany Medical College were held May 5, when 34 young physicians received diplomas from Chancellor Van Vranken of Union University.

The Ithaca Epidemic.—Dr. George Soper of the State Board of Health reports on the Ithaca epidemic that "so far as can be said at present, there have been 955 cases and 64 deaths. This ranks the epidemic among the most important in modern times in this part of the world." Twenty-nine of the deaths were of Cornell students.

Grip, Pneumonia and Nephritis.—The bulletin of the State Board of Health for March says that the state is at present in the course of an annually recurring epidemic of grip. A few deaths were reported as early as October, but the estimated mortality was not above 500 until January, when it was placed at 1,200 for the month, and for February it was increased to 1,500. The mortality of March was increased 2,000 by this disease. Separate record has not been kept of pneumonia save for the past two years. It was the cause of 8,800 deaths in 1902, or a little over 50 per cent. of the reported acute respiratory mortality. In January there were 1,223 deaths, in February 1,133, in March 1,290. Nephritis caused 726 deaths in March, a decrease from last month.

Buffalo.

Bond Issue Authorized.—The state legislature has passed a law granting Buffalo the privilege of issuing bonds for $500,000 for the improvement and extension of the water system.

Personal.—Dr. Charles G. Stockton went to New York to attend the dinner given by Dr. Max Einhorn in honor of Professor Ewald of Berlin.——Dr. Irving P. Lyon is in the Adirondacks.——Dr. Harvey R. Gaylord of the Gratwick Cancer Laboratory has typhoid fever.

Hospital Appointments.—Drs. Edward Drozeski, Hyatt Regester, Thew Wright and Fred Parmenter have been appointed resident physicians at the Buffalo General Hospital.——Drs. Elliott Bush, C. J. Roberts and Albert Bixby have been appointed resident physicians at the Erie County Hospital.

PENNSYLVANIA.

To Lessen Child Labor.—A bill passed by the legislature raising the age limit of children employed in the coal mines from 14 to 16 has been approved by the governor.

Food Laws Violated.—Dairy and Food Commissioner Warren has ordered 24 prosecutions in various parts of the state for violations of the laws relating to dairy and food products. Of this number 14 are in Allegheny.

Philadelphia.

John Herr Musser.—In the account of the new President of the American Medical Association in THE JOURNAL, May 16, his name was given as John Henry Musser. It should have been John Herr Musser.

Anthrax has appeared among a herd of 50 cows on the dairy farm of Albert Zimmerman in the outskirts of the city. The Bureau of Milk Inspection has placed the farm under quarantine and has ordered an inspection of all the dairy farms near the city.

Playgrounds.—The grounds of 35 public schools in different parts of the city will be opened by the board of education on July 1, for a period of two months, as playgrounds for children. Kindergarten teachers are appointed to direct the children at play, at a salary of $40 per month each.

Death and Disease Report.—There were 474 deaths in Philadelphia for the week ended May 16, as against 396 for the corresponding week of last year. Of diphtheria there were 64 new cases and 7 deaths; scarlet fever 93 new cases, 3 deaths; typhoid 247 cases, 27 deaths; smallpox 30 cases, 1 death.

Sweatshop Crusade.—Local factory inspectors have begun an active crusade against manufacturers of clothing whose employes are compelled to work in unsanitary shops. Investigation has shown that young women and girls are compelled to work in crowded quarters without regard to sanitary precautions, and also that many of these sweatshop employes are under the age limit of 13. Warrants have been issued for the arrest of several employers.

Medical Club Reception.—On the evening of May 15 the Medical Club, several hundred in number, gave a reception at the Hotel Bellevue in honor of Prof. J. von Mikulicz-Radecki of Breslau, Prof. C. A. Ewald of Berlin, Prof. Hans Kehr of

Holberstadt, Prof. Hermann Tillmans of Leipsic, Mr. Moynihan of Leeds, England, Professor Adami of Montreal, and Dr. George H. Simmons of Chicago. The guests of honor all spoke earnestly of the courtesies shown them on the occasion, the foreign visitors especially of the hospitality lavished on them throughout their stay in America. The reception was preceded by a dinner at the University Club, at which Dr. E. E. Montgomery, president of the Medical Club, was the host.

The New Director of Health.—The mayor has appointed, as the director of the new Department of Public Health and Charities, Dr. Edward Martin. Dr. Martin was born in Philadelphia in 1859. He received A.B. and A.M. degrees from Swarthmore College, and was graduated from the medical department of the University of Pennsylvania in 1883. He is professor of clinical surgery at the University of Pennsylvania and surgeon at the Howard, St. Agnes', Philadelphia and University hospitals. He was surgeon of the Third Regiment in the Spanish-American War, was appointed brigade surgeon by President McKinley, and was afterward made sanitary inspector of the Fourth Army Corps. Dr. Martin has written several medical text-books and has made other contributions to medical literature. Dr. Martin has appointed as chief of the bureau of health, Dr. A. C. Abbott, professor of hygiene at the University of Pennsylvania; as chief resident physician of the Philadelphia Hospital, to succeed the late Dr. Daniel E. Hughes, Dr. Montgomery H. Biggs, formerly chief resident physician of the University of Pennsylvania Hospital. The following eminent physicians are invited to act as a consulting board to the department: Dr. S. Weir Mitchell, J. William White and John H. Musser of the University of Pennsylvania; Dr. Charles B. Penrose of the Gynecean Hospital; Dr. Hobart A. Hare of the Jefferson Medical College, and Dr. J. M. Anders of the Medico-Chirurgical College. Dr. Martin's ability and the high character of his appointments inspire the belief that his administration marks a new era in the sanitary regulations of Philadelphia, in the conduct of the Philadelphia Hospital, and in all that pertains to the health of the city.

GENERAL.

Navy Stops Recruiting.—Because of overcrowded conditions and some contagious diseases on receiving ships, the naval department has ordered all recruiting stopped till further notice. The present enlisted force is within about 2,000 of the maximum allowed by law, 31,000.

Marine-Hospital Appointments.—Examination for the positions of assistant surgeon of the U. S. P. H. and M.-H. S. will be held June 15 at Washington. Candidates must be between 22 and 30 years of age, and graduates of reputable medical colleges. The test is partially in writing on the usual medical subjects and partially clinical, at a hospital. Further information may be had of Dr. Walter Wyman, surgeon-general, Washington, D. C.

FOREIGN.

Measles in Fiji.—A severe epidemic of measles is reported in the Fiji Islands.

The Peru plague outbreak seems at present to be at an end. Some have expressed doubts as to its having been plague at all.

Mazatlan Uses Oil Against Plague.—To prevent another outbreak, Mazatlan authorities are using petroleum on streets and houses to ensure the death of all plague germs that may remain.

Further Research on Malaria in the Congo.—The king of Belgium has sent $2,500 to the Liverpool School of Tropical Medicine to be devoted to the study of malaria in the Congo region.

Recrudescence of the Plague.—An exchange quotes the following figures to show the spread of the plague in India. During the month of February, 1899, the total deaths from plague throughout India were 12,000. During the same month in 1900 the figure was 11,000; in 1901, 34,000; in 1902, 86,000, and in 1903, 112,000.

Correspondence.

Fraudulent Use of Dr. Murphy's Name.

CHICAGO, May 19, 1903.

To the Editor:—I received your letter to-day with the literature from the "Christian Hospital" inclosed. I would say that your letter was one of hundreds which I have received, containing the same kind of literature. As far as I am able to determine, all of the states west of the Mississippi have been flooded with the publications of the "Christian Hospital." I would say, further, that my name was used without either my knowledge or consent, and that this literature was sent out during my absence from the city. I do not know, and have never seen, to my knowledge, a single man whose name is mentioned in the list of the "staff"; I see in there a number of the names which were used in a scheme similar to this one in connection with the "St. Luke's Hospital, Niles, Michigan," scheme, where Dr. Senn's name was used, and also one in which the name of Dr. E. O. Kinsman of Cambridge, Mass., was used in a similar way. J. B. MURPHY.

Deaths.

John P. Bryson, M.D. Humboldt Medical College, St. Louis, 1868, professor of genito-urinary surgery in the medical department of Washington University, died at his home in St. Louis, May 5, from heart disease, after an illness of five days, aged 57.

Israel Pattison, M.D. University of Buffalo, 1867, for many years surgeon of the Great Western Railway, at Oelwein, Iowa, died at his home in that place, April 26, from brain disease, after an illness of two weeks, aged 62.

William J. Burgess, M.D. University of St. Louis, Mo., 1847, died at Quincy, Ill., April 7.

Deaths Abroad.

J. B. V. Laborde, M.D., Paris, 1864, director of the physiologic department and of the laboratory of anthropology, inspector of the private sanatoria of the Seine, editor of the "Tribune Médicale" for thirty years and president of the French Association of the Medical Press, died at Paris, April 5, aged 73. Among his numerous contributions to science are various works on physiology, on chloroform, intoxication with different poisons and extensive research on the application of the experimental method to the study of biology. He has lately been a leader in the campaign against the use of white lead and the abuse of alcohol. His world-wide fame, however, rests on his method of resuscitation of the apparently dead from drowning, poisoning with gas, etc., by rhythmic tractions of the tongue. As the "Gazette Medicale de Paris" remarks, "this was a true discovery, by a true scientist, and popularized by a true journalist."

Medical Organization.

Reorganization in Texas.

The Texas State Medical Association met in San Antonio, April 28-30. At the meeting in 1902 the committee appointed at the previous annual meeting to consider and report on a new plan of organization had failed to agree, presenting a majority and minority report, both more or less at variance with the Association plan. A little feeling was engendered in discussing these reports, but this had disappeared during the year, and even before the session was called to order it was evident that a spirit of harmony and unity was in the air. Much of this good feeling was due to the peace-making work of the San Antonio District Medical Society, and similar efforts on the part of the medical journals of the state, and of individual members.

At the first meeting the subject of reorganization was referred to a large committee composed of one delegate from each county represented. After patiently going over the constitutions and by-laws proposed by the American Medical Association for both state and county societies, section by section, this committee reported unanimously in favor of the uniform plan without change, and it was adopted without a dissenting voice, with genuine enthusiasm.

Texas has 270 counties and about 6,000 physicians. The state was divided into fifteen districts, with councilors in each as follows:

First District, S. T. Turner, El Paso; Second, P. C. Coleman, Colorado; Third, D. P. Fly, Amarillo; Fourth, C. M. Alexander,

Coleman; Fifth, W. B. Russ, San Antonio; Sixth, A. E. Spohn, Corpus Christi; Seventh, T. B. Bennett, Austin; Eighth, Walter Shropshire, Yoakum; Ninth, J. T. Moore, Galveston; Tenth, B. F. Calhoun, Beaumont; Eleventh, R. S. Burroughs, Buffalo; Twelfth, W. R. Blallock, McGregor; Thirteenth, J. H. McCracken, Mineral Wells; Fourteenth, C. E. Cantrell, Greenville; and Fifteenth, Holman Taylor, Marshall.

Under a special resolution the council was appointed by the president to serve for one year, when the new house of delegates will elect regularly. The council organized promptly, electing J. T. Moore of Galveston chairman and W. B. Russ of San Antonio secretary, and after full discussion mapped out an active campaign for the year. On the recommendation of the council the secretary of the association was instructed to have 5,000 copies each of the constitution and by-laws for state and county societies printed for free distribution to the profession of the state, and he was authorized to issue charters to county societies until the next annual meeting, on recommendation of the council. It was also provided that new members of county societies joining between now and the next annual meeting who pay their state dues in advance, shall have credit for such dues for 1904, practically obtaining membership for two years by paying for one year. Texas has an unusually strong and progressive medical profession. Its new practice act is just being put into operation, and with the new organization, which has the promise of united support from every section, it can and ought to lead in every helpful reform in which it takes an interest.

The following officers were elected: President, Dr. Frank Paschal, San Antonio; vice-presidents, Drs. Ferdinand E. Daniel, Austin, Alfred L. Hathcock, Palestine, and Joseph D. Beeton, Greenville, and orator, Dr. Henry A. Barr, Beaumont.

J. N. McCORMACK.

Societies.

COMING MEETINGS.

South Dakota State Medical Society, Mitchell, May 27-28.
Connecticut Medical Society, Hartford, May 27-28.
West Virginia State Medical Association, Charleston, May 26-28.
Indian Territory Medical Association, South McAlester, June 2-3.
Medical Society of the State of North Carolina, Hot Springs, June 2.
Ohio State Medical Society, Dayton, June 3-5.
Rhode Island Medical Society, Providence, June 4.
Wisconsin State Medical Society, Milwaukee, June 3-5.
Maine Medical Association, Portland, June 3-5.
Indiana State Medical Society, Richmond, June 4-5.
Medical Society of Delaware, Dover, June 9.
Massachusetts Medical Society, Boston, June 9-10.
Michigan State Medical Society, Detroit, June 11-12.
Minnesota State Medical Society, St. Paul, June 17.
Medical Association of Montana, Helena, June 17-18.
Medical Society of New Jersey, Asbury Park, June 23-25.

Kansas Medical Society.—At the thirty-seventh annual meeting held in Concordia, May 6, 7 and 8, the following officers were elected: Dr. William E. McVey, Topeka, president; Drs. George W. Coffey, Concordia, and John T. Axtell, Newton, vice-presidents; Dr. Clarenee C. Goddard, Leavenworth, corresponding secretary; Dr. Lewis H. Munn, Topeka, treasurer; and Dr. Samuel G. Stewart, Topeka, librarian. Topeka was selected as meeting-place for 1904.

Medical Association of the State of Alabama.—The annual meeting was held in Talladega April 21 and 22. The report of the secretary showed that 1,225 physicians of the state were members of the county societies, and that the remaining 773 were non-members. Dr. Matthew B. Cameron, Sumterville, was elected president; Dr. John R. G. Howell, Dothan, vice-president southern district; Dr. Lewis C. Morris, Birmingham, secretary; Dr. Henry G. Perry, Greensboro, treasurer, and Dr. George S. Brown, Birmingham, orator. The association will meet in Mobile in 1904.

AMERICAN GYNECOLOGICAL SOCIETY.

Twenty-Eighth Annual Meeting, held in Washington, D. C., May 12 to 14, 1903.

The President, Dr. Joseph E. Janvrin, New York, in the Chair.

An address of welcome was delivered by Dr. I. S. Stone of Washington, D. C., which was responded to by the president.

There was a symposium on the following subject:

What Shall Be the Treatment in Cases of Pregnancy Complicated by Fibroid Tumor?

The first paper, with this title, was read by Dr. Henry C. Coe, New York, who stated that fibroid tumors complicate pregnancy because they interfere with the normal development of the pregnant uterus. They cause distressing symptoms, or they jeopardize the life of the fetus or of the mother. Each case must be studied separately, and the decision as to the treatment will vary with the patient, the tumor, the experience, and bias of the surgeon. He spoke of the influence of the tumor on pregnancy, and of pregnancy on the tumor—increased growth, degenerative changes, environment, etc. He mentioned three "semesters" of pregnancy:

1. Up to the fourth month. (a) Empty the uterus in the case of large interstitial or broad ligament tumors, or where they are situated in the lower uterine segment. Also in cases of impacted intrapelvic growths. Cases were cited in point. (b) Small tumors should be enucleated per vaginam, if possible, though pregnancy will usually be interrupted. Intrauterine polypi should be removed, if accessible. (c) Enucleation should be done by the abdominal route. Subperitoneal pedunculated growths should be removed. (d) Impacted growths should be liberated under anesthesia, when no adhesions are present, and they should be kept out of the pelvic cavity until they are kept out of the way by the growing fetus. The wishes of the patient should be followed, so far as this can be done with safety.

2. Fourth to seventh month. The location of the tumor is important, as well as its size and variety. Pain and pressure symptoms furnish indications for treatment. (a) Large interstitial growths. The uterus may be emptied, although the danger of hemorrhage from such a course is greater. (b) He advises enucleation by the abdominal route, and spoke of the propriety of removing multiple small tumors which do not encroach on the uterine cavity. (c) the patient should be kept under observation. The patient may go to full term and be delivered normally. (d) Impacted tumors, pressing on the bladder, bowel, ureter, may call for radical operation. (e) Twisted pedicle, degeneration of tumor, disease of the adnexa, peritonitis, etc., may require interference without reference to pregnancy.

3. After sixth month. Viability of the fetus should be obtained, if the life of the mother is not actually jeopardized. Can the woman be delivered at term? Yes (a) with subperitoneal growths, if they are not too large, and favorably situated. (b) Small interstitial fibroids, if they are not in the lower uterine segment. (c) Polypi presenting at the os can be easily removed at any time. After the eighth month the Porro-cesarean operation, suprapubic amputation or hysterectomy should be performed, preferably by election, i. e., before full term.

Conservatism should be practiced here, as in other gynecological operations, but not carried to extremes.

The author discussed the question of marriage and subsequent risks of pregnancy in women with fibroids. He said the time for conservative surgery is often before there is a chance of conception. In general, if a fibroid is to be regarded as a menace to life before pregnancy, the condition must be still more grave after conception occurs. Is it not the duty of the gynecologist to ward off this danger?

Officers for the Ensuing Year.

The following officers were elected: President, Dr. Edward Reynolds, Boston, Mass.; vice-presidents, Drs. J. Whitridge Williams, Baltimore, and Edward P. Davis, Philadelphia; secretary, Dr. J. Riddle Goffe, New York (re-elected); treasurer, Dr. J. Montgomery Baldy, Philadelphia (re-elected). The next session will be in Boston, May 24 to 26, 1904.

Only a small portion of the report of this society is given this week, because of the space given to the minutes of the American Medical Association session.

(To be continued.)

AMERICAN MEDICAL ASSOCIATION.

Proceedings of the Fifty-fourth Annual Session, held at New Orleans, May 5, 6, 7 and 8, 1903.

Correction to Minutes of House of Delegates.

The following correction in the minutes, as published in THE JOURNAL last week, must be made. On p. 1378, under the heading, "Dental and Pharmaceutic Members Provided For," it should have been stated that a by-law was adopted, which was worded as follows, and which will be incorporated in the Constitution and By-laws in the future:

Dental and pharmaceutic members shall enjoy the same privileges as regular members and be subject to the same conditions.

OFFICIAL MINUTES OF THE SECTIONS.

As Rendered by the Respective Secretaries or Stenographers.

Section on Practice of Medicine.

TUESDAY, MAY 5.

Address of the Chairman, W. S. Thayer, Baltimore.

"Restorative Influence of Ozone on the Blood." G. Lenox Curtis. Discussed by F. A. Weber, Milwaukee.

"The Boy's Venereal Peril." Ferd. C. Valentine, New York. Discussion by J. J. Walsh, New York; F. W. Robbin, Michigan; DeLancey Rochester, Buffalo, N. Y.; Theodore Potter, Indianapolis; M. M. Smith, Texas; Frank A. Jones, Memphis; E. L. Stevens, Iowa; W. Shropshire, Texas, and Ferd. C. Valentine.

"Continued Fever, Neither Malarial nor Typhoid; a Clinical Study." T. J. Happel, Trenton, Tenn.

"Southern Fevers." William Krauss, Memphis, Tenn.

"Clinical Observation of Ninety Cases of Typhoid Fever, with Four Deaths, with Special Reference to Therapeutic Fasting." R. M. Harbin, Rome, Ga.

"Typhoid Fever at High Altitudes, with a Résumé of 600 Cases." J. N. Hall, Denver.

Discussion on the above four papers by T. B. Futcher, Baltimore; James Tyson, Philadelphia; J. A. Witherspoon, Nashville, Tenn.; C. F. Mason, U. S. A.; R. W. Lindsay, Little Rock, Ark. Discussion of last four papers to be continued with the Symposium on Typhoid Fever on Thursday morning.

The Committee on Nominations was announced as J. H. Musser, Philadelphia; William Krauss, Memphis, and Thomas McCrae, Baltimore.

WEDNESDAY, MAY 6.

"Weakness and Dilatation of the Heart Due to Chronic Nutritional Diseases." G. W. McCaskey, Fort Wayne, Ind. No discussion.

"Limitations of Non-Surgical Treatment in Intestinal Obstruction." J. R. Eastman, Indianapolis. No discussion.

"The Occurrence of Strongyloides Intestinalis in the United States." M. L. Price, Baltimore. Discussion by C. W. Stiles, Washington, D. C.; A. J. Smith, Galveston, Texas; Ohlmacher, Ohio, and J. T. Moore, Galveston, Texas.

"Clinical Diagnosis of Intestinal Parasites." C. W. Stiles, Washington, D. C.

"Uncinariasis in the United States, with Especial Reference to Its Occurrence in Texas." Allen J. Smith, Galveston, Texas.

"Treatment of Uncinariasis." T. A. Claytor, Washington, D. C. Discussion on the last three papers by W. G. Harrison, Alabama; E. D. Bondurant, Mobile, Ala.; C. A. Moore, Alabama; G. W. McCaskey, Fort Wayne, Ind.; T. A. Williams, Edinburgh, Scotland; Claud A. Smith, Atlanta, Ga.; James B. Herrick, Chicago; William Britt Burns, Memphis, Tenn.; C. W. Stiles, Washington, D. C.; A. J. Smith, Galveston, Texas, and T. A. Claytor, Washington, D. C.

"Bacillary Dysentery." C. F. Mason, Fort Sam Houston, Texas.

"Contribution to the Study of the Summer Diarrhœa of Infancy." J. Mason Knox, Baltimore.

"Malarial Dysentery." William Britt Burns, Memphis, Tenn.

"The Clinical History and Pathology of Amebic Dysentery." H. F. Harris, Atlanta, Ga.

"A Study of the Cases of Amebic Dysentery Occurring at the Johns Hopkins Hospital." T. B. Futcher, Baltimore.

"The Treatment of Acute Dysentery." J. M. Anders, Philadelphia.

Discussion on the above six papers by Alexander Lambert, New York; T. B. Dabney, New Orleans; J. T. Moore, Galveston, Texas; W. Shropshire, Yonkum, Texas; C. F. Mason, Fort Sam Houston, Texas; J. H. Mason Knox, Baltimore; William Britt Burns, Memphis, Tenn.; H. F. Harris, Atlanta, Ga.; T. B. Futcher, Baltimore; J. M. Anders, Philadelphia.

"Abdominal Pain in Pleurisy and Pneumonia." James B. Herrick, Chicago. Discussion by J. N. Hall, Denver; T. McCrae, Baltimore; J. M. Anders, Philadelphia; B. W. Sibley, Chicago, and J. B. Herrick, Chicago.

"Traumatic Pneumonia." W. T. English, Pittsburg, Pa.

THURSDAY, MAY 7.

COMBINED MEETINGS WITH SECTION ON HYGIENE AND SANITARY SCIENCE.

"The Sources and Manner of Infection of Typhoid Fever." William H. Welch, Baltimore.

"Prophylaxis of Typhoid Fever." John S. Fulton, Baltimore.

Discussion on the above two papers by John H. Musser, Philadelphia; DeLancey Rochester, Buffalo, N. Y.; William Krauss, Memphis; Frank Warner, Ohio; J. N. Hurty, Indianapolis; Sewell, Denver; E. J. Roberts, Nashville, Tenn.; C. F. Adams, New Jersey; James Tyson, Philadelphia; J. J. Walsh, New York; Walter Shropshire, Texas; T. J. Happell, Trenton, Tenn., and John S. Fulton, Baltimore.

"The Mode of Transmission of Yellow Fever." James Carroll, U. S. A. Discussion by Stanford E. Chaillé, Edmond Souchon, Q. Kohnke and Felix Formento, New Orleans; C. W. Stiles, Washington, D. C., and James Carroll, U. S. A.

The following officers were elected: Chairman, Alexander Lambert, New York; secretary, J. S. Miller, Chicago.

"Sources and Manner of Infection of Plague." W. J. Calvert, St. Louis.

"Prophylaxis of Plague." J. J. Kinyoun, Philadelphia.

Discussion on the two above papers by F. G. Novy, Ann Arbor, Mich.; E. Richford, San Francisco, and W. J. Calvert, St. Louis.

"Arthritis Deformans." Thomas McCrae, Baltimore. Discussion by J. J. Walsh, New York; J. T. Moore, Galveston, Texas; E. E. Skinner, New Haven, and Thomas McCrae, Baltimore.

"Albuminuria in Diabetes; Its Etiology and Importance as a Factor in the Production of Diabetic Coma." Arthur R. Elliott, Chicago. Discussed by William Krauss, Memphis, Tenn.; F. R. Weber, Milwaukee, and Elliott, Chicago.

FRIDAY, MAY 8.

A committee to appoint a member to the House of Delegates was named as follows: H. L. Sullivan, Mississippi; William Krauss, Tennessee, and T. B. Futcher, Maryland. They reported in favor of Frank A. Jones, Tennessee.

"The Passing of Chronic Rheumatism." J. J. Walsh, New York. Discussion by James Tyson, Philadelphia; Thomas McCrae, Baltimore; Alexander Lambert and J. J. Walsh, New York.

"Hemoglobinuric Fever; Its Cause and Treatment." Walter Shropshire, Texas. Discussion by William Krauss, Memphis, Tenn.; Barnes, Louisiana; Frank A. Jones, Memphis, Tenn.; Southerland, Mississippi; L. A. Jabus, Tennessee; James B. McElroy, Mississippi; W. S. Thayer, Baltimore; Williams, Edinburgh, Scotland, and Walter Shropshire, Texas.

"Some Clinical Aspects of Tubercular Peritonitis." Joseph Eichberg, Cincinnati. No discussion.

"Tuberculosis in the Negro." Seale Harris, Union Springs, Ala. No discussion.

"Should the Tuberculosis Patient Know the Truth Regarding His Condition?" C. P. Ambler, Ashville, N. C. No discussion.

Adjourned.

Section on Obstetrics and Diseases of Women.

TUESDAY, MAY 5—AFTERNOON.

Meeting called to order at 2 p. m. by the Chairman, A. Palmer Dudley.

L. H. Dunning took the Chair while the Chairman read his address entitled "The Trend of Gynecological Work To-day."

On motion a vote of thanks was extended to the chairman for his very able paper.

On motion of F. Lawrence a committee of three was appointed to draft a suitable memorial on the death of W. E. B. Davis. The Chair appointed Drs. Lawrence, Cordier, Rogers, Carstens.

H. P. Newman followed with a paper on "Appendicitis from the Standpoint of the Gynecologist." Discussed by Reynolds, E. Ricketts, Wathen, Michinard, Manton, Bacon, Carstens, Thienhaus, Bovée, Massey, Lewis, McCollum, Lawrence, Craig.

"Gastric Ulcer, Some Clinical, Pathologic and Surgical Phases of," was the title of a paper read by A. H. Cordier. Discussed by J. H. Carstens, Clark, Thienhaus, Lawrence, Cordier.

On motion of Dr. Bonifield the papers of Drs. Haggard and Ricketts are to be called for the first thing in the morning session and in the event of absence of essayists, the papers are to be placed at the end of the list.

The Chair appointed the following Nominating Committee: H. P. Newman, J. H. Carstens, Lewis, H. O. Pantzer, J. G. Clark.

WEDNESDAY MAY 6—MORNING.

The Section met at 9 a. m. and was called to order by the Chairman, A. Palmer Dudley.

The first paper, entitled "Infected Gall Bladder Contents, with or without Gallstones," was read by Edwin Ricketts. Discussed by L. H. Dunning, C. W. Thienhaus, Thompson, Halderman, H. O. Marcy, A. Palmer Dudley, Ricketts.

H. O. Marcy read a paper on "The Better Methods for the Repair of the Perineal Structures." Discussed by Drs. Goelet, Dunsmore, Hayden, Graham, Gibbons, Dorsett, Carstens, Dudley, Marcy.

"The Repair of Cystocele by Utilization of the Anatomic Attachments of the Anterior Vaginal Wall" was the title of a paper read by E. Reynolds. Discussed by H. O. Marcy, Thienhaus, Bovée, and Reynolds in closing.

"Lacerations of Cervix" was the title of a paper read by Daniel H. Craig. Discussed by G. B. Massey, R. W. Holmes, Hayden, Bacon, Dunsmore, Craig.

J. H. Carstens read a paper entitled "The Hygiene of Young Girls."

F. Lawrence followed with a paper on "Pelvic Diseases in Young Girls."

Both the above papers were discussed by L. S. McMurtry, Graham, Massey, Bonifield, Carstens and Lawrence.

WEDNESDAY, MAY 6—AFTERNOON.

Meeting was called to order at 2 p. m. by the Chairman.

C. S. Bacon presented the following resolution:

"Resolved, That the officers of this Section be instructed to arrange future programs so far as possible for an equality both in

number and arrangement of obstetric and of gynecologic papers." On motion discussion of this resolution was deferred until the afternoon session, Thursday.

A. H. Goelet followed with a paper on "Fixation of the Prolapsed Kidney." Discussed by Drs. Wagner, Dunning, Ricketts, Clark, Bonifield, Craig, Goelet.

J. G. Clark read a paper entitled "A Combined Clinical and Laboratory Study of the Effects of Peritoneal Saline Infusions in Abdominal Operations." Discussed by Drs. Bovée, Stacey, Lawrence, Bonifield, Ricketts, Thienhaus, Showalter (?), Wagner, Clark.

L. H. Dunning read a paper on "Retroversion of the Uterus; A Clinical Study of the Symptoms, Complications and Treatment."

J. Wesley Bovée contributed a paper entitled "A Further Report on Operations on the Utero-Sacral and Round Ligaments for Retroversion of the Uterus."

Discussion on these papers was participated in by Drs. Massey, Lewis, Dorsett, Milliken, Thienhaus, Carstens, Showalter, Marcy, Ricketts, Lawrence, Hall, Dudley, Dunning and Bovée.

THURSDAY, MAY 7—MORNING.

Section called to order at 9:30 a. m. by the Chairman.

The first paper read was that of T. S. Cullen, entitled "Sarcomatous Degeneration of Myomata." Discussed by J. G. Clark, L. H. Dunning, C. O. Thienhaus, C. L. Bonifield, Cullen.

O. G. Pfaff followed with a paper on "Ectopic Gestation; Inhibited Tubal Peristalsis a Cause. Report of a Case with Remarks." Discussed by L. H. Dunning, H. Ehrenfest, G. B. Massey, J. H. Carstens, F. Lawrence, C. O. Thienhaus, A. P. Dudley, T. J. Beattie and Pfaff.

R. W. Holmes read a paper entitled "Non-Absorbent Gauze; The Proper Material for Tamponades for Hemorrhage, with Special Reference to Obstetrics." Discussed by C. S. Bacon, C. O. Thienhaus, Showalter, H. Ehrenfest, W. P. Manton, S. C. Gordon, H. J. Stacey, Pierce, R. Wier, E. V. Davis, G. N. Ryan, Showalter, Holmes.

Wm. P. Manton read a paper entitled "Acute General Staphylococcus Infection Through the Puerperal Breast." Discussed by Drs. Jamiston, C. S. Bacon, E. V. Davis, R. W. Holmes, Wm. P. Manton.

THURSDAY, MAY 7—AFTERNOON.

Section called to order at 2:30 p. m. by the Chairman.

H. P. Newman, Chairman of Nominating Committee, reported as follows: Chairman, L. H. Dunning, Indianapolis; secretary, C. L. Bonifield, Cincinnati; delegate, Wm. P. Manton, Detroit. Report was adopted on motion.

Dr. Bacon's resolution was taken up for consideration. Discussed by Drs. Ricketts, Carstens and Bacon. On motion the resolution was laid on the table indefinitely.

G. B. Massey read the first paper, entitled "Destructive Sterilization by Cataphoresis in Cancer of the Uterine Cervix." Discussed by Drs. Hayden, Moody, Pierce, Massey.

C. O. Thienhaus read a paper on "Advisability of Vaginal Exploratory Puncture and Celiotomy in Doubtful Diagnosis in Diseases of Female Genital Organs, with Cases." Discussed by Drs. Stacey, Craig, Carstens, Thienhaus.

H. O. Pantzer read a paper on "Conservative Surgery of the Sclerotic Ovary." Discussed by Drs. Dunning, Dudley, Pantzer.

F. Lawrence, Chairman of the Committee on Resolutions, in the matter of the death of W. E. B. Davis, presented the following resolutions:

WHEREAS, The late Dr. W. E. B. Davis was for many years an earnest, honest and fearless worker in the Section on Obstetrics and Diseases of Women of the American Medical Association, and

WHEREAS, His kindly manner, his forceful character and his masterful intellect have contributed much to the success of the Section both scientifically and fraternally, and

WHEREAS, He was one of the most efficient of our many chairmen; therefore, be it

Resolved, That in his death the Section loses one of its most valued and honored members; the profession loses one of its most worthy workers; the nation loses a man worthy a hero's laurels. Though dead his beneficent efforts and his scientific spirit will live in the hearts of his confreres so long as human suffering demands patience, energy, sympathy and skill.

Resolved, That a copy of these resolutions be spread on the minutes of this Section and an engrossed copy be sent to his widow and children.

F. F. Lawrence, Chairman; J. H. Carstens, A. H. Cordier.

W. D. Haggard read a paper entitled "A Study of Intestinal Perforations in Typhoid Fever, with Report of Three Successful Operations and Collective Investigation of 295 Cases of Operation." Discussed by Ricketts and Thienhaus.

On motion a vote of thanks was extended to the Chairman and Secretary for efficient services.

Adjourned *sine die*.

Section on Surgery and Anatomy.

TUESDAY, MAY 5—AFTERNOON.

The meeting was called to order at 2 p. m. by the Chairman, James E. Moore, Minneapolis.

The Chairman's address, entitled "A Plea for Exploratory Operations," was read.

H. J. Whitacre, Cincinnati, read a paper entitled "Suppression of Urine; Report of a Case Enduring Eight Days, Relieved by Decapsulation of the Kidneys."

J. R. Guthrie, Dubuque, Iowa, read a paper entitled "Fat Necrosis of the Kidney."

Alex. Hugh Ferguson, Chicago, read a paper entitled "The Surgical Treatment of Nephritis."

The Chairman then introduced Dr. Adolph Lorenz of Vienna, who spoke as follows: "I do not intend to impose on your kindness. As far as I know, some ten or fifteen minutes are accorded to every speaker. I will only take one or two minutes, just to thank you for your welcome and to wish a courteous success to the members of the Section."

The papers previously read were then discussed by the following: Arthur Dean Bevan, Chicago; Jepson, Iowa; McLaren, Minnesota; R. H. Gibbons, Scranton, Pa.; Ramon Guiteras, New York; McArthur, Chicago; F. A. Dunsmoor, Minneapolis; Winslow, Baltimore, and Whitacre and Ferguson.

B. B. Davis, Omaha, read a paper entitled "Indications for Cholecystectomy."

F. A. Dunsmoor, Minneapolis, read a paper entitled "The Call for Exploratory Operation in the Gall Bladder Region."

These papers were discussed by W. J. Mayo, Rochester, Minn.; J. B. Murphy, Chicago; A. J. Ochsner, Chicago; Hamilton, Columbus, Ohio; Richard H. Gibbons, Scranton, Pa., and Davis and Dunsmoor.

James B. Bullitt, Louisville, Ky., moved that the Executive Committee be appointed the Nominating Committee, which motion was duly seconded and carried, and the Secretary instructed to cast the ballot therefor.

Adjournment until 9:30 a. m., Wednesday.

WEDNESDAY, MAY 6—MORNING.

The meeting was called to order at 9:30 a. m. by the Chairman. Van Buren Knott, Sioux City, Iowa, read a paper entitled "A Contribution to the Surgery of Gastric Ulcer."

H. D. Niles, Salt Lake City, read a paper entitled "Surgical Conception of Pyloric Obstruction."

A. J. Ochsner, Chicago, read a paper entitled "Clinical Observations in Stomach Surgery."

These papers were discussed by A. H. Andrews, Chicago; W. J. Mayo, Rochester, Minn.; Carl Wagner, Chicago; William L. Rodman, Philadelphia; A. H. Cordier, Kansas City; Arthur Dean Bevan, Chicago; and Knott, Niles and Ochsner.

O. Beverly Campbell, St. Joseph, Mo., read a paper entitled "The Single Cuff Method of Circular Enterorrhaphy; A New Method."

James E. Moore, Minneapolis, read a paper entitled "Intestinal Resection, with Report of Fifteen Cases, Nine with the Button and Six with the Suture."

These papers were discussed by Jonas, Omaha; Horsely, Texas; Walker, Detroit; J. B. Murphy, Chicago; Alex. Hugh Ferguson, Chicago, and Campbell.

Arthur Dean Bevan of Chicago made the following motion: "That the Delegates of the Section on Surgery call the attention of the House of Delegates to the fact that much surgical work, such as appendicitis, gastric ulcer, typhoid perforation and gall-bladder surgery, is being at the present time duplicated in two Sections of this Association, and that the very important work of obstetrics is not being sufficiently emphasized. I move that it is the sense of the Section on Surgery that its interests would be best conserved if the surgical diseases of women were transferred to the Section on Surgery, leaving to the gynecologic Section obstetrics and the diseases of the genital organs of women. I move that the Delegates of the Section on Surgery bring this matter before the House of Delegates." This motion was duly seconded and carried.

Adjourned to 2:30 p. m.

WEDNESDAY, MAY 6—AFTERNOON.

John T. Bottomley, Boston, read a paper entitled "Multiple Osteomyelitis."

Edward H. Nichols, Boston, read a paper entitled "Osteomyelitis."

These papers were discussed by DeForest Willard, Philadelphia; J. C. Stewart, Minneapolis; J. B. Murphy, Chicago; Richard Gibbons, Scranton, Pa., and Nichols.

John A. Wyeth, New York, read a paper entitled "The Treatment of Vascular Tumors by the Injection of Water at a High Temperature, with Suggestions as to Its Employment in Tubercular Adenitis, Abscess, Fistulous Tracts, etc." This paper was discussed by W. J. Mayo, Rochester, Minn.; John P. Lord, Omaha; Richard H. Gibbons, Scranton, Pa., and Wyeth.

William J. Mayo, Rochester, Minn., read a paper entitled "Further Experience with the Vertical Overlapping Method for the Radical Cure of Umbilical Hernia." This paper was discussed by A. J. Ochsner, Chicago; J. B. Murphy, Chicago; Washer, Louisville; Magee, Minnesota; Alex. Hugh Ferguson, Chicago, and W. J. Mayo.

W. T. Eckley, Chicago, read a paper entitled "Evolution of the Mammalian Straight Gut, with Special Reference to Peritoneal Changes Incident to Rotation." This paper was discussed by Willis, California, and Richard H. Gibbons, Scranton, Pa.

Fred. B. Lund, Boston, read a paper entitled "The Value of Enterostomy in Selected Cases of Peritonitis." This paper was discussed by Thayer, Baltimore; Miles F. Porter, Fort Wayne, Ind.; Thomas, Washington; James B. Bullitt, Louisville, Ky.; F. A. Dunsmoor, Minneapolis, and F. B. Lund.

F. D. Smythe, Memphis, Tenn., read a paper entitled "Cholecystectomy versus Cholecystorraphy and Cholecystostomy." No discussion.

Richard H. Gibbons, Scranton, Pa., read a paper entitled "Dangers Attendant on Attempt at Gaining the Period of Interval in Operation for Appendicitis." This paper was discussed by H. D. Niles, Salt Lake City; James B. Bullitt, Louisville, Ky.; A. J. Ochsner, Chicago; W. J. Mayo, Rochester, Minn.; J. B. Murphy, Chicago, and R. H. Gibbons.

THURSDAY, MAY 7—MORNING.

The meeting was called to order at 9:30 a. m. by the Chairman.

DeForest Willard, Philadelphia, read a paper entitled "Sunshine and Fresh Air versus Roentgen and Finsen Rays in the Treatment of Tuberculosis of Bones and Joints."

J. Clark Stewart, Minneapolis, read a paper entitled "Epithelioma Under the X-Ray; a Preliminary Report of the Histologic Changes."

These papers were discussed by Henry A. Christian, Boston; Edward H. Nichols, Boston; Ridlon, Chicago; Fred. B. Lund, Boston; Browden, Clarksville; James E. Thompson, Galveston, Texas, and Willard and Stewart.

John E. Summers, Jr., Omaha, read a paper entitled "Varix of the Inferior Mesenteric Vein Complicated by Chronic Ulcerative Colitis; Operation." This paper was discussed by F. D. Smythe, Memphis; Milliken, Texas, and Summers.

Charles A. Powers, Denver, read a paper entitled "Congenital Dislocation of the Radius." This paper was discussed by John T.

Bottomley; Fred. B. Lund, Boston; DeForest Willard, Philadelphia, and Powers.

John P. Lord, Omaha, read a paper entitled "Acute Epiphysitis of the Head of the Femur, Causing a Condition Subsequently Simulating Congenital Misplacement." This paper was discussed by Ridlon, Chicago; Townsend, New York, and Lord.

Adjourned until 2 p. m.

THURSDAY, MAY 7—AFTERNOON.

The meeting was called to order at 2 p. m. by the Chairman.

The Nominating Committee reported the following nominations: Chairman, Charles A. Powers, Denver; secretary, E. Wyllys Andrews, Chicago; delegate, William J. Mayo, Rochester, Minn.

On motion, duly made, seconded and carried, the Secretary was instructed to cast the ballot for these candidates, and they were unanimously elected.

W. H. Earles, Milwaukee, read a paper entitled "Necessity for More Care in the Treatment of Skull Fractures." This paper was discussed by Sherrill, Louisville, Ky.; Carl Wagner and Sullivan, Chicago; R. B. Davis, Omaha; Brown, Alabama; Lemmon, Milwaukee; Witherspoon, Illinois, and Earles.

James B. Bullitt, Louisville, Ky., read a paper entitled "Epispadias; Report of a Case Treated by a Modification of Cantwell's Method." This paper was discussed by Poorham, Martin and Fenner, New Orleans, and Bullitt.

Charles A. Powers, the chairman-elect, was then introduced by the Chairman and made the following remarks:

Mr. Chairman and Gentlemen: To be elected the presiding officer over this large body of American surgeons is to me a great honor. To be the successor, as Chairman of this Section, of Murphy, Rodman, Ochsner, Walker, Mayo, Moore and DeForest Willard is to me very much of a compliment. However unworthy I am, however undeserving of this tribute I may be, I promise to serve you faithfully and to the very best of my ability.

Rudolph Matas, New Orleans, read a paper entitled "Cicatricial Ankylosis of the Jaws; a Contribution to Its Operative Treatment." This paper was discussed by J. B. Murphy, Chicago; Eastman, Indiana; Martin, New Orleans; A. J. Ochsner, Chicago, and R. Matas.

Arthur Dean Bevan, Chicago, read a paper entitled "Further Contribution to the Surgery of Undescended Testicle." This paper was discussed by E. Eckley and Carl Wagner, Chicago; Bartlett, St. Louis; A. J. Ochsner, Chicago; Rodman, Philadelphia, and Bevan.

J. B. Murphy, Chicago, read a paper entitled "Surgery of the Urinary Tract in the Female, Experimental and Clinical." This paper was discussed by McLaren, St. Paul; Goodhue, Ohio; Hart, Chicago; Taggert, Chicago; F. D. Smythe, Memphis; M. B. Tinker, Baltimore, and Murphy.

A. H. Levings, Milwaukee, read a paper entitled "Consideration of Mammary Cysts in the Early Diagnosis of Breast Tumors." This paper was discussed by B. B. Davis, Omaha; Sullivan, Chicago; Knight, Hartford, Conn.; Morton, California, and Levings.

Adjourned until Friday at 9 a. m.

FRIDAY, MAY 8—MORNING.

The meeting was called to order at 9 a. m.

Dr. Sexton read a paper entitled "Treatment of Fractures of the Femur in Plaster-of-Paris Casts." This paper was discussed by John P. Lord, Omaha; Grant, Denver; Brandon, Tennessee; Andrews, Mankato; Maurey, New York; Crouse and Sexton.

Miles F. Porter, Fort Wayne, Ind., read a paper entitled "The Closure of Wounds." This paper was discussed by John E. Summers, Jr., Omaha; Pearce, Kansas City; Morton, California; Perkins, New Orleans, and Porter.

T. C. Witherspoon, St. Louis, read a paper entitled "Operative Treatment of Exophthalmic Goiter." This paper was discussed by Grant, Denver; Rixford, California; Horsely, Texas, and Witherspoon.

F. G. Connell, Leadville, Colo., read a paper entitled "Subcutaneous Injections of Paraffin for Deformities of the Nose." This paper was discussed by Morton, California, and John P. Lord, Omaha.

Walter M. Spear, Rockland, Me., read a paper entitled "Abscess of the Spleen." No discussion.

E. J. Mellish, El Paso, Texas, read a paper entitled "Anesthesia." This paper was discussed by James E. Moore, Minneapolis; A. J. Ochsner, Chicago; M. B. Tinker, Baltimore; William J. Mayo, Rochester, Minn.; John E. Summers, Jr., Omaha, and Mellish.

On motion of Lord, Omaha, duly seconded and carried, the following papers were read by title: "Indications and Technic of Nephrectomy," Ramon Guiteras, New York; "Contributions to the Therapy of Surgical and Other Diseases with X-Rays," Rudolph Matas, New Orleans; "The Surgical Treatment of Ascites Due to Cirrhosis of the Liver," M. L. Harris, Chicago.

A. J. Ochsner, Chicago, moved that this Section extend its most hearty thanks to Dr. Moore, our President, and Dr. Monroe, our Secretary, for having arranged one of the finest programs that has ever been before any surgical section and for having carried out the conduct of this meeting in a most masterly and successful way. This motion was unanimously carried.

Adjournment.

Section on Hygiene and Sanitary Science.

TUESDAY, MAY 5—AFTERNOON.

The Chairman, H. M. Bracken, Minneapolis, called the meeting to order at 2 p. m.

Cressy L. Wilbur, Lansing, Mich., read a paper on "Co-operation Methods of Improving the Usefulness of Statistical Classification of Causes of Death." The paper was discussed by Wilbur; J. S. Fulton, Baltimore; G. T. Swarts, Providence, R. I.

In connection with this subject-matter, Dr. Wilbur introduced resolutions, which he requested to be recommended to the House of Delegates for adoption, calling on the various state medical societies to take steps looking to the adoption of registration laws in states where none presently exist; calling on physicians throughout the United States generally to promote the securing of accurate mortality statistics by giving correct and definite statements of all causes of deaths occurring in their practice. Further, that the American Medical Association appoint a Committee on Vital Statistics, to deal with the question of proper compilation of mortality statistics, and the extension of the registration area, etc. On motion, the resolutions in question were referred to the House of Delegates for action, with the recommendation that they be adopted.

The Secretary then read the paper of W. A. King, Washington, D. C., on "Relation of Physicians to Correct Registration of Vital Statistics." The paper was discussed by Seneca Egbert, Philadelphia; T. A. Williams, Edinburgh, Scotland; Cressy L. Wilbur, Lansing, Mich.; J. N. Hurty, Indianapolis; J. S. Fulton, Baltimore.

The Secretary then stated to the members that a smoker would be held to-night, to which they were invited, at the Old Absinthe House, Bienville and Bourbon streets.

The Chair named a Nominating Committee as follows: J. N. Hurty, Chairman; W. C. Chapman and Cressy L. Wilbur.

WEDNESDAY, MAY 6—MORNING.

The meeting was called to order at 9 o'clock.

The Chairman of the Committee on Nominations requested further time in which to report, as he desired to have another conference with his fellow members.

The paper, "Drainage, Sewerage and Water Supply of New Orleans," was read by George G. Earl, New Orleans, and discussed by G. T. Swarts, Providence, R. I.; J. S. Fulton, Baltimore, Md.; Seneca Egbert, Philadelphia, and Mr. Earl.

"Preparation of the Filtration of Water" was read by George W. Fuller of New York, and discussed by Swarts; W. C. Chapman, Toledo; E. B. Borland, Pittsburg; Seneca Egbert, Philadelphia; F. J. Mayer, Lafayette, La.; W. G. Owens, Whitecastle, La., and Mr. Fuller.

On motion, duly seconded, the thanks of the Association were extended to Messrs. Earl and Fuller for the preparation and submission of their papers.

Secretary Swarts stated that Isadore Dyer, New Orleans, had extended an invitation to the members of the Section to participate in a boat ride on Saturday, May 9, to the Lepers' Settlement in Iberville parish.

The next business in order being the appointment of an Executive Committee, to act with the Chairman, Dr. Bracken named J. S. Fulton and Seneca Egbert as such members.

F. J. Mayer offered a resolution requesting the House of Delegates to have represented on their next annual program the subject "Medical Jurisprudence." Carried. Thereon, after a lantern slide exhibition by Mr. Earl, the meeting adjourned.

WEDNESDAY, MAY 6—AFTERNOON.

The meeting was called to order at 2:30 p. m.

The Chairman of the Nominating Committee, on behalf of his Committee, offered the following nominations: For Chairman, G. T. Swarts, Providence, R. I.; Secretary, J. S. Fulton, Baltimore, Md.; member Executive Committee, Seneca Egbert, Philadelphia; delegate to House of Delegates, H. M. Bracken, Minneapolis. On motion of Dr. Hurty, the vote of the Section was cast as a unit for the election of the officers named.

"Tent Life in the Treatment of Pulmonary Tuberculosis" was read by Dr. W. J. Craig, Phoenix, Ariz. The discussion was by J. F. McConnell, Las Cruces, N. M.; J. N. Hurty, Indianapolis; Jos. L. Watt, New York City, and G. T. Swarts.

The next paper, "Where, Under Our Form of Government, Do Public Health Powers Reside, and How Should They be Exercised?" by W. H. Saunders, Montgomery, Ala., was discussed by H. A. Moody, Mobile, Ala.; R. B. Murray, of the Marine-Hospital Service; H. D. Holton, Brattleboro, Vt.; W. H. Saunders, and, by special courtesy of the Section, J. M. Lindsay, Havana.

H. A. Moody, Mobile, Ala., then read a paper on "The Future of Preventive Medicine."

F. J. Mayer asked permission to read, in connection with Dr. Moody's paper, a paper written by himself on the same subject. It was decided, however, that the paper of Dr. Dyer should be first taken up, and that subsequently that of Dr. Mayer could be read, to be discussed in conjunction with the offering of Dr. Moody.

Isadore Dyer, New Orleans, then read a paper on "Leprosy from a Sanitary Standpoint"; and which was thereafter discussed by Swarts, Bracken, T. H. French of Hawaii, and Dyer.

By unanimous consent, the volunteer paper of Dr. Mayer was then read by the author. In connection therewith, Dr. Mayer moved the adoption of a resolution endorsing the principle of public education in the matter of hygiene, and the cause, nature and effect of certain diseases, advocating the establishment of a school to that end, and the appointment of a committee of five to carry out the idea.

Dr. Holton moved that the resolution in question be referred to the House of Delegates, together with the papers read by Drs. Moody and Mayer on the subject.

Geo. M. Kober, Washington, D. C., suggested, as a substitute, that the two papers named be referred to the Committee on Public Health of the Association, and the House of Delegates requested to endorse the idea conveyed in the resolution, which last motion prevailed by a unanimous vote.

Messrs. George W. Fuller, New York, and George G. Earl, New Orleans, were then elected associate members of the Section.

Thereon, the Section adjourned, to meet in joint session with the Section on Practice of Medicine, in the Washington Artillery Hall, Thursday, May 7.

Section on Ophthalmology.

TUESDAY, MAY 5—AFTERNOON.

The meeting was called to order by the Chairman, John E. Weeks, New York, at 2:15.

Two members of the Executive Committee being absent, the Chair appointed two gentlemen to serve in their stead during the session, Frank Allport being the member present and George E. de Schweinitz and Harold Gifford the appointed members.

On motion of Edward Jackson, the Section voted that the Executive Committee act as Nominating Committee, as had been done in former years.

Address of the Chairman, John E. Weeks, New York.

The Chair called attention to some of the rules governing the reading of papers and discussions, as follows: All papers must be read in whole or part, unless, the author being present and prepared to read the paper, the Section shall unanimously vote to have it read by title, or unless the author, being present, is prevented from reading his paper because of some disability, when the paper may be read for him. The reading of a paper shall not occupy more than twenty minutes. The member opening the discussion of a paper not to have more than ten minutes and subsequent speakers five. No member shall speak twice on the same subject.

The Chair announced an invitation by Drs. Bruns and de Roaldes to visit the Eye, Ear, Nose and Throat Hospital; hours 9 to 10 a. m.; operating day, Thursday.

The Chair also announced that the Section was invited to attend a reception by Dr. and Mrs. Bruns on Wednesday, 5 to 7 p. m., the invitation including ladies accompanying members.

The question was asked if, under the ruling, the author of a paper would be allowed to close the discussion of his subject, to which the Chair replied that he would.

The Chair requested that members, on rising to discuss a paper, announce their names and places of residence, in order that it might be known at all times who was addressing the Section.

William Campbell Posey, Philadelphia, read a paper on "Vernal Conjunctivitis," which was discussed by John E. Weeks, New York; Henry Dickson Bruns, New Orleans; Henry Gradle, Chicago; Zentmayer, Philadelphia; A. R. Baker, Cleveland; Hiram Woods, Baltimore; Stevenson, Akron, Ohio; Strickler, Cincinnati; Gifford, Omaha; Claiborne, New York; Randolph, Baltimore; Morrow, Canton, Ohio.

Rufin A. Wright, Mobile, Ala., read a paper on "Subtropical Trachoma, with Special Reference to a New Therapeutic Agent," which was discussed by James W. Dunn, Cairo, Ill.; Pfingst, Louisville; Gifford, Omaha; Knulson, Fort Wayne; Harlan, Baltimore, and Ledbetter, Birmingham, Ala.

E. C. Ellett, Memphis, Tenn., read a paper on "Experimental Study on Some Methods of Combating Post-Operative Infection of the Anterior Segment of the Globe." Discussed by E. A. Shumway, Philadelphia; Frank Allport, Chicago; de Schweinitz, Philadelphia; Claiborne, New York, and Hale, Chicago.

Louis Stricker, Cincinnati, read a paper on "Ocular Complications of Bright's Disease."

George F. Suker, Chicago, read a paper on "Albuminuric Retinitis and the Decapsulation of the Kidney."

These were discussed jointly by H. D. Bruns, New Orleans; Greenwood, Boston; Connor, Detroit; Jackson, Denver; de Schweinitz, Philadelphia; Griffin, Ann Arbor.

WEDNESDAY, MAY 6—MORNING.

The meeting was called to order at 9:15 a. m. by the Chairman.

George E. de Schweinitz, Philadelphia, read a paper on "The Physiology of the Sympathetic in Relation to the Eye."

William H. Wilder, Chicago, read a paper on "The Influence of Resection of the Superior Ganglion of the Cervical Sympathetic in Glaucoma."

James Moore Ball, St. Louis, read a paper on "Influence of Resection of the Cervical Sympathetic in Optic Nerve Atrophy, Hydrophthalmos and Exophthalmic Goiter."

John E. Weeks, New York, read a paper on "Pathology of the Cervical Sympathetic."

Discussion on Symposium by G. Melville Black, Denver; G. C. Savage, Nashville, Tenn; George F. Suker, Chicago; Edward Jackson, Denver; George E. de Schweinitz, Philadelphia.

Henry Gradle, Chicago, read a paper on "Retinal Disease Limited to the Region of the Macula Lutea." Discussed by W. L. Dayton, Lincoln, Neb.; Leartus Connor, Detroit; C. W. Hawley, Chicago.

Casey A. Wood, Chicago, chairman of the Committee on the Pathologic Exhibit, offered an address on "Methods of Preparing and Preserving Ophthalmic Specimens for the Museum."

Edward Jackson, Denver, read a paper on "Skiascopy as a Method of Precision." Discussed by O. A. Griffin, Ann Arbor; Harold Gifford, Omaha; William H. Wilder, Chicago; C. W. Hawley, Chicago.

WEDNESDAY, MAY 6—AFTERNOON.

The meeting was called to order at 2:10 p. m. by the Chairman.

"Some Points in the Pathology of Neoplasms of the Conjunctiva, Illustrated by the Present Exhibit of Morbid Growths." Edward A. Shumway, Philadelphia.

Casey A. Wood, Chicago, gave a stereopticon exhibit of the fundi of various lower animals. Subject, "A Stereopticon Demonstration of Lindsay Johnson's Method of Classifying the Mammalia by the Appearances of the Fundus Oculi."

Robert L. Randolph, Baltimore, chairman of the Committee on Bacteriologic Exhibit, delivered an address on "The Bacteria Concerned in the Production of Eye Inflammations," and exhibited a number of illustrative lantern pictures.

"Bacteria in the Conjunctiva, Cornea, Iris, Ciliary Body and Chorioid, and Changes Caused Thereby," was illustrated with stereopticon slides by Brown Pusey, Chicago.

"The Essentials and Unessentials of Ophthalmic Asepsis." Harold Gifford, Omaha. Discussed by Casey A. Wood, Chicago; I. J. Dunn, Erie; W. H. Dudley, Easton, Pa.; A. O. Pfingst, Louisville; A. R. Baker, Cleveland; E. C. Ellett, Memphis; W. R. Parker, Detroit; J. H. Claiborne, New York, and Harold Gifford, Omaha.

"Development of the Fusion Center in the Treatment of Strabismus." Nelson M. Black, Milwaukee, Wis.

"A Set of Charts for Stereoscope to Be Used for an Amblyopic Eye or for Treatment of Squint." Albert B. Hale, Chicago.

Discussion on these two papers by G. C. Savage, Nashville, Tenn.; Casey A. Wood, Chicago; Edw. Jackson, Denver; M. D. Stevenson, Akron, Ohio.

The Secretary read a communication pertaining to a united meeting of various ophthalmologic and otologic societies, from the Secretary of the Academy of Ophthalmology and Oto-Laryngology, which was referred to the Executive Committee.

"Cramp of the Ciliary Muscle Due to Eyestrain." J. W. Wright, Columbus, Ohio. Discussed by Edw. Jackson, Denver; John A. Donovan, Butte, Mont.; Lawrence R. Ryan, Galesburg, Ill.

THURSDAY, MAY 7—MORNING.

The meeting was called to order at 9:15 a. m. by the Chairman.

"Some Observations on the Eye Complications of Smallpox During the Recent Epidemic in Cleveland." A. R. Baker, Cleveland, Ohio. Discussed by J. F. Fulton, St. Paul; Leartus Connor, Detroit; Mann, Texarkana; Jno. A. Donovan, Butte, Mont.; R. W. Miller, Los Angeles; Oscar Dodd, Chicago; E. P. Morrow, Canton, Ohio; D. A. Thompson, Indianapolis; Greenwood, Boston; F. W. Hilsdeer, Spokane; Jno. E. Weeks, New York.

"Skin Grafting on the Eyelids." Oscar Dodd, Chicago.

"Entropion and the Operations Employed for Its Relief." Jno. O. McReynolds, Dallas, Tex. Dr. McReynolds requested from the Chair the privilege of making a few remarks as an addendum to his paper of last year on the pterygium operation, which was granted.

The above two papers were discussed by Albert B. Hale, Chicago; Wm. H. Wilder, Chicago; C. W. Hawley, Chicago; Frank C. Todd, Minneapolis; R. W. Miller, Los Angeles; Oscar Dodd, Chicago.

"Traumatic Lesions of the Ocular Adnexa, with Report of a Case of Contused Wound of the Eyebrow Resulting in Complete Monocular Blindness Unaccompanied by Ophthalmoscopic Changes." Eliet O. Sisson, Keokuk, Iowa. Discussed by Casey A. Wood, Chicago; Wm. Campbell Posey, Philadelphia; Harold Gifford, Chicago; Jno. O. McReynolds, Dallas; Oscar Dodd, Chicago; Greenwood, Los Angeles; Edw. Jackson, Denver; A. E. Bulson, Ft. Wayne, Ind.; Leartus Connor, Detroit; Zentmayer, Philadelphia; S. L. Ledbetter, Birmingham, Ala.; John E. Weeks, New York.

"Report of a Case of Complete Absence of Both Eyeballs at Birth." Lawrence R. Ryan, Galesburg, Ill. Discussed by Casey A. Wood, Chicago; James Moores Ball, St. Louis; J. H. Claiborne, Jr., New York; S. C. Ayers, Cincinnati.

EXHIBITION OF INSTRUMENTS.

Wm. C. Posey, Philadelphia, exhibited an apparatus for convenience in carrying bottles of collyria.

W. F. Suker, Chicago, exhibited an instrument to be used in connection with the Geneva ophthalmoscope, to facilitate the demonstration of the eye fundus to students.

Frank C. Todd, Minneapolis, exhibited a tendon tucker, which was an improvement on the one presented by himself last year.

Frank Allport, Chicago, introduced a resolution that

WHEREAS, The eyesight and hearing of school children is of inestimable value to them for the acquiring of an education; therefore, be it

Resolved, That it is advised by the American Medical Association that measures be taken by the various school authorities and boards of education, boards of health, and if possible state legislators, to secure examinations of the eyes and ears of all school children in this country with a view to the suitable treatment for the relief of the ophthalmologic and otologic imperfections.

On motions of G. C. Savage, Nashville, Tenn., and amended by Edw. Jackson, Denver, these resolutions were endorsed by the Section and recommended to the House of Delegates of the American Medical Association.

THURSDAY, MAY 7—AFTERNOON.

The meeting was called to order by the Chairman at 2:15 p. m.

The report of the Nominating Committee was: Chairman, R. L. Randolph, Baltimore; secretary, A. E. Bulson, Ft. Wayne, Ind.; delegate, Casey A. Wood, Chicago. A motion by Dr. Savage to adopt the report in full was carried. The Section voted that the Secretary cast the ballot for the nominees and they were declared elected.

Dr. de Schweinitz, for the Executive Committee, recommended to the Section the adoption of the following rule: Any member of the Section or Secretary of the Association who has twice permitted his name to be listed on the program of the Section as intending to read a paper and has failed to attend the sessions at which these papers were due, and to give satisfactory explanation for his absence, shall be no longer eligible to read a paper before this Section until he has attended at least two consecutive sessions. On motion of Dr. Baker the recommendation was adopted as a rule of the Section.

On motion of Dr. Moulton a vote of thanks was extended the gentlemen who had so kindly allowed the use of the stereopticon. On motion of the Secretary the Section gave a vote of thanks to Dr. Bruns for his assistance and to Dr. and Mrs. Bruns for their courtesy and hospitality to the Section.

"Extraction of the Crystalline Lens in High Myopia." H. V. Würdemann and Nelson M. Black, Milwaukee.

"The Management of High Myopia." J. H. Claiborne, New York.

These two papers were discussed by Edw. Jackson, Denver; Albert B. Hale, Chicago; H. D. Bruns, New Orleans; G. M. Black, Denver; J. F. Fulton, St. Paul; Moulton, Ft. Smith, Ark.; Oscar Dodd, Chicago; de Schweinitz, Philadelphia; Leartus Connor, Detroit; Greenwood, New Orleans; Jno. E. Weeks, New York.

"Calcareous Degeneration of Corneal Cicatrices." H. Moulton, Ft. Smith, Ark.

"The Voluntary and Involuntary Brain Centers Controlling the Ocular Muscles." G. C. Savage, Nashville, Tenn. Discussed by Edw. Jackson, Denver.

Under the head of miscellaneous business the Chairman explained the reasons why Prof. Uhthoff failed to be present as a guest of the Section.

On motion of the Secretary a vote of thanks was extended to the Pathologic Committee who prepared the exhibit.

On motion of the Secretary a vote of thanks was extended to the Committe who prepared the Bacteriologic Exhibit.

Leartus Connor, Detroit, offered a resolution, that a committee of five, consisting of the last five ex-chairmen of this Section, be requested to make a study of the situation of the relation of this Section to the ophthalmologists of the United States, to the end that they may determine in what way a larger number can be brought into co-operation with this Section. An amendment was offered by Dr. Savage, that Dr. Connor be included in the committee. The amended motion was adopted.

At the suggestion of Dr. Edw. Jackson, Denver, the Section gave a vote of thanks to the officers of this Section.

Section on Diseases of Children.

TUESDAY, MAY 5—AFTERNOON.

Called to order at 2:35 p. m. Attendance 100.

The Chairman, John C. Cook, Chicago, delivered his address on "Development and Care of Children," and presented to the members the bibliography of the same in printed form.

In the absence of two members of the Executive Committee the Chairman appointed to act *pro tem.*: Drs. A. C. Cotton, Chicago, and H. E. Tuley, Louisville, Ky.

It was moved and carried that a suggestion of the Chairman in his address that each state should have a committee of five persons to have control of matters of education and child labor and that these should be appointed by judges of the Supreme Court, so as to remove these matters forever from the domain of petty politics, be referred to the House of Delegates for action.

The Secretary read Sections 6 and 7 of the By-laws.

Paper 2. "Anatomic and Physiologic Correspondences of Child and Adult." Wm. T. Eckley, Chicago.

Paper 3. "Is the Study of Pediatrics Worth the Attention It Gets, and Does It Get the Attention It Deserves?" C. F. Wahrer, Fort Madison, Iowa. Discussed by W. F. Boggess, Louisville, Ky.

Paper 5. "Acute Suppurative Cervical Adenitis of Infancy. Thomas S. Southworth, New York. Discussed by A. C. Cotton, Chicago; C. G. Kerley, New York; R. B. Gilbert, Louisville; Brown, Decatur, Ill.; E. T. Shelly, Atchison, Kan.; Wm. T. Eckley, Chicago; Wm. C. Williams, Chicago; J. C. Mastin, Chicago; H. A. Leavell, Louisville, Ky., and T. S. Southworth.

H. M. McClanahan moved that, in view of the death of Dr. Margaret Taylor Shutt of Springfield, Ill., since the last annual session, a committee be appointed by the Chairman to draw up suitable resolutions and transmit them to her family. Carried.

The Section then adjourned.

WEDNESDAY, MAY 6—MORNING.

Called to order at 9:00 a. m. Attendance 175.

Paper 6. "The Pathology of Summer Diarrheas of Children," by G. W. Boot, Evanston, Ill., was, in Dr. Boot's absence, read by the Secretary.

On motion of Dr. C. G. Kerley of New York the discussion on the symposium was postponed until the other papers had been read.

Paper 7. "Every-Day Problems in Infant Feeding." Henry Enos Tuley, Louisville, Ky.

Paper 8. "Infant Feeding." Alexander McAlister, Camden, N. J.

Paper 9. "The Infant Digestive Disturbances." Alfred C. Cotton, Chicago.

Paper 10. "Suggestions for Reducing the Prevalency of Summer Diarrhea." J. Ross Snyder, Birmingham, Ala.

Paper 11. "Observations on Breast Feeding from an Obstetrician's Point of View, with Report of Cases." Effa V. Davis, Chicago.

Paper 12. "Aphthæ and Herpes Contracted by Children Drinking Milk from Cows Suffering from Foot and Mouth Diseases." E. F. Brush, Mt. Vernon, N. Y.

Paper 15. "Observations on Prolonged Withdrawal of all Foods in the Management of Certain Cases of Intestinal Disorders." Thomas D. Parke, Birmingham, Ala.

Discussion on symposium (Papers 6 to 15) by H. M. McClanahan, Omaha; C. G. Kerley, New York; R. B. Gilbert, Louisville, Ky.; Dixon, Kentucky; Auld, Chicago; Parkhurst, Indiana; T. S. Southworth, New York.

The discussion was then voted to be continued at the afternoon meeting.

The Section adjourned.

WEDNESDAY, MAY 6—AFTERNOON.

Called to order at 2:40 p. m. Attendance 100.

Paper 14. "Infant Feeding: Its Relation to Diarrheal Diseases of Infancy." Jason Mastin, Chicago.

Discussion continued on symposium by George N. Acker, Washington, D. C.; Southworth, New York (for Dr. G. W. Boot); Henry E. Tuley, Louisville, Ky.; A. C. Cotton, Chicago; J. Ross Snyder, Birmingham, Ala.; Effa V. Davis, Chicago; James G. Mastin, Chicago; Thomas D. Parke, Birmingham, Ala.

H. E. Tuley, Louisville, then moved that a committee be appointed by the Chairman to draw up a classification of the intestinal diseases of children, to be submitted to the Section in 1904. Carried.

Paper 18. "Case of Probable Gummata of the Liver in a Child of Six." Maurice Ostheimer, Philadelphia. Discussion by R. B. Gilbert, Louisville, Ky., and C. F. Wahrer, Fort Madison, Iowa.

Paper 34. "Influenza in Children." Wm. Carver Williams, Chicago. Discussed by R. B. Gilbert, Louisville, Ky.; C. G. Kerley, New York; Parkhurst, Indiana; H. M. McClanahan, Omaha; Theo. J. Carlin, Minnesota; John C. Cook, Chicago; C. F. Wahrer, Fort Madison, Iowa; J. H. Hanna, Covington, Tenn., and Wm. Carver Williams, Chicago.

The Section adjourned.

THURSDAY, MAY 7—MORNING.

Called to order at 9:15 a. m. Attendance 125.

Chairman announced as committee to submit a classification of the intestinal diseases of childhood to Section in 1904: Henry Enos Tuley, Louisville, Ky.; Alfred C. Cotton, Chicago; Thomas S. Southworth, New York.

Paper 19. "Capillary Bronchitis." Philip F. Barbour, Louisville, Ky.

On motion of Dr. Kerley, discussion on the pulmonary papers was postponed until the others had been read.

Paper 21. "Management of Catarrhal Pneumonia in Infants and Young Children." Charles Gilmore Kerley, New York.

Discussion on Papers 19 and 21 by C. F. Wahrer, Fort Madison, Iowa; Wm. C. Williams, Chicago; R. B. Gilbert and H. E. Tuley, Louisville, Ky.; Thos. D. Parke, Birmingham, Ala.; H. A. Leavell and P. F. Barbour, Louisville, Ky.; C. G. Kerley, New York.

Paper 31. "The Safranin Reaction in the Urine of Children," by Dr. W. S. Christopher of Chicago, was read by Dr. A. C. Croftan, Chicago. Discussion by A. C. Croftan, Chicago, and W. F. Boggess, Louisville.

P. F. Barbour, Louisville, moved that the unanimous thanks of the Section be tendered to the Chairman for the complete bibliography of his paper which he had presented in printed form to the members. Carried.

The Section then adjourned.

THURSDAY, MAY 7—AFTERNOON.

Called to order at 2:40 p. m. Attendance 100.

The Nominating Committee put in nomination for 1904: Chairman, Charles G. Kerley, New York; Secretary, C. F. Wahrer, Fort Madison, Iowa. These were unanimously elected.

J. R. Snyder nominated Henry E. Tuley, Louisville, as the Delegate of the Section, in the House of Delegates for two years, and the Secretary was empowered to cast one ballot for Dr. Tuley.

The Chairman then presented to Dr. Kerley a gavel to be used in Section work, to which Dr. Kerley fittingly replied.

Paper 26. "The Treatment of Scarlet Fever: Its Complications and Sequelæ." H. M. McClanahan, Omaha. Discussion by R. B. Gilbert, Louisville, Ky.; G. A. Hermann, Hamilton, Ohio; J. H. Hanna, Covington, Tenn.; B. R. Shurly, Detroit; E. T. Shelly, Atchison, Kan.; Dodson, Chicago; Pearson, Kansas; Kennedy, Kentucky, and H. M. McClanahan.

Paper 30. "Prolonged or Retained Intubation Tubes with a Method of Treatment Leading to Their Extraction." B. R. Shurly, Detroit. Discussion by C. G. Kerley, New York, and Brown, Illinois.

Paper 28. "Hydronephrosis in a Boy of Three and One-half Years, with Operation and Recovery," by Samuel W. Kelley, Cleveland, Ohio, was then read by the Secretary.

The Section, having completed its work, then adjourned to the next annual session.

Section on Stomatology.

TUESDAY, MAY 5—AFTERNOON.

The Section was called to order by the Chairman, M. L. Rhein of New York.

It was moved that the papers presented by those unavoidably absent should be read. Carried.

W. E. Walker, New Orleans, and M. H. Fletcher, Cincinnati, were appointed on the Executive Committee

The address of the Chairman, M. L. Rhein, was read and was discussed by Fredericks, Eames, Boston; Gilmer, Chicago; T. E. Constant, Scarborough, Eng.; W. E. Walker, C. V. Vignes, New Orleans; Talbot, Chicago, and Rhein.

Drs. Eames, Walker and Talbot were appointed a committee to consider the subject of the Chairman's address and to form resolutions thereon.

It was resolved that the following gentlemen of other countries be elected members of this Section of the American Medical Association by invitation: A. C. Spaulding, Paris; T. E. Constant, Scarborough, Eng.; D. E. Causch, Brighton, Eng.; Michael Morganstein, Strassburg, Germany; Oskär Römer, Strassburg, Germany.

It was resolved that the following local residents be made associate members of the Section on Stomatology of the American Medical Association; C. Edmund Kelk, Jr., Paul de Verges, Jules J. Sarrazin, H. E. Belden.

A paper entitled "The Vasomotor System" was read by Eugene S. Talbot and illustrated by slides. Discussed by Fletcher, Constant, Gilmer, Eames, Belden, Sarrazin and Talbot.

Exhibition of Slides in demonstration of a paper entitled "The Development of Hard Tissue in the Pulp," by D. E. Causch of Brighton, Eng.

A paper by Martha Anderson, Moline, Ill., entitled "Notes on Pulp Technic," was read by E. S. Talbot.

Exhibition of Slides in demonstration of a paper entitled "Tolerance of Tissues for Foreign Bodies, with Special Reference to the Pulp and Peridental Membrane," by M. H. Fletcher, Cincinnati.

Exhibition of Slides in demonstration of a paper entitled "Some Histologic Facts Contradictory to the Theory of Odontoblasts," by Michael Morganstein, Strassburg, Germany.

The following were appointed a Nominating Committee: A. E. Baldwin, Chicago; M. H. Fletcher, Cincinnati; W. E. Walker, New Orleans.

WEDNESDAY, MAY 6—AFTERNOON.

The Section was called to order at 2:25 by A. E. Baldwin, Chicago, in the Chair.

M. H. Fletcher of Cincinnati read a paper entitled "Tolerance of Tissues for Foreign Bodies, with Special Reference to the Pulp and Peridental Membrane." The paper was discussed by Talbot, Baldwin, Curtis, Rhein, H. Pilcher of Vienna, Eames, Walker and Fletcher.

It was resolved that all papers on the pulp be read and discussed jointly.

A paper entitled "The Dental Pulp Viewed without the Microscope" was read by T. E. Constant, Scarborough, Eng.

A paper entitled "Some Histologic Facts Contradictory to the Theory of Odontoblasts," by Dr. Michael Morganstein, Strassburg, Germany, was read by A. E. Baldwin.

"The Development of Hard Tissue in the Pulp of Human Teeth," by D. E. Causch, Brighton, Eng., was read by G. F. Eames.

A paper on "Pulp Hypertrophy of the Teeth," by Oskär Römer, Strassburg, Germany, was read by M. L. Rhein.

These papers were discussed by Talbot and Fletcher. At this point the discussion was postponed until the next meeting.

A. E. Baldwin made the report from the House of Delegates.

THURSDAY, MAY 7—MORNING.

The meeting was called to order at 10:15 by the Chairman, M. L. Rhein.

The adjourned discussion of the paper of T. E. Constant was continued by Fletcher, Pilcher, Baldwin, Walker, Eames, Rhein and Constant.

Dr. Baldwin made a supplemental report from the House of Delegates to the effect that any dentist holding the degree of D.D.S. from any reputable dental college, and being a member of his local dental and state society shall, on recommendation of the officers of the Section and vote of the Section, become a dental

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member of the American Medical Association; and shall enjoy all the privileges of regular members.

The Nominating Committee made the following report, and the Secretary was authorized to cast the ballot for its adoption: G. F. Eames, chairman; Eugene S. Talbot, secretary; executive committee: A. H. Peck, R. R. Andrews and M. L. Rhein. Member to the House of Delegates, Dr. A. E. Baldwin.

A. E. Baldwin read a paper on "Professional Responsibilities." Discussed by T. E. Constant of England, Gillmer, Talbot, Curtis, Rhein, Pilcher, Walker, Eames and Baldwin.

A paper by O. N. Heise, Cincinnati, entitled "Empyema of the Maxillary Sinus," was read by G. F. Eames, and discussed by Gillmer, Fletcher, Constant, Rhein, Baldwin and Curtis.

THURSDAY, MAY 7—AFTERNOON.

The meeting was called to order at 2:10 p. m. by M. H. Fletcher in the Chair.

G. F. Eames read a paper on "The Influence of Local and General Disturbances on the Oral Secretions." Discussed by Talbot, Fletcher, Walker, Pilcher and Eames.

A paper by Charles Chittenden, Madison, on "Is the Accomplishment of Reasonable Ideals in Dental Education Near at Hand?" was read by W. E. Walker, New Orleans, and discussed by Talbot, Fletcher, Rhein, Constant, and Walker.

W. E. Walker read a paper entitled "Orthodontic Facial Orthopedia." Discussed by Talbot, Constant, Fletcher, Belden, Rhein and Walker.

H. E. Belden, New Orleans, read a paper entitled "Methods of Controlling Hemorrhage of the Oral Cavity." Discussed by Rhein, Eames and Belden.

On motion the paper of Richard Gray, Baltimore, on "The Dentist in the U. S. Army, and of Alice M. Steves, Boston, entitled "Medical and Dental Libraries," were read by title.

G. F. Eames, Chairman of the Committee to consider the suggestions of the Chairman's Address, reported and the report was adopted, as follows:

Your committee have carefully considered the propositions contained in the Chairman's Address, relating to the training of women as dental nurses, that they may, under the prescription and personal direction of the stomatologist, cleanse and sterilize the mouth, polish the teeth, make medical applications to the gums, and otherwise assist the practitioner in his treatment of patients.

Your committee heartily approves the above named suggestions and earnestly commends the matter for the approval of this Section of the American Medical Association, hoping that it will lead to such action being taken by different state dental societies looking to the amendment of our dental laws, so that the appointment and employment of "dental nurses" shall be legalized.

Section on Nervous and Mental Diseases.

TUESDAY, MAY 5—AFTERNOON.

The meeting was called to order at 2 p. m. by F. W. Langdon, Cincinnati, Chairman.

The Chairman said: It affords me great pleasure to say to you that, owing to the industry and efficiency of our worthy Secretary, we have to present to you at this meeting a most attractive and somewhat extensive program, which, providing we digest and assimilate it properly, can not fail to be of benefit to us and to mankind through us. I am also admonished that the length of the program and the limited time at our disposal requires that we waste no time in preliminaries, and I therefore pronounce the session of the Section on Nervous and Mental Diseases open. As Chairman, one of my privileges is to have the right of way, and, in order that I may not take up too much of your valuable time, I shall present a mere abstract of my address.

Sir William Gowers and Sir Victor Horsley, both of London, have been requested by me to become members of our Section by invitation. Both have accepted, but are unable to be present.

I wish to announce that the annual banquet of the Section will be held to-night at Victor's Restaurant, on Bourbon street, at 8 o'clock.

Address of Chairman. F. W. Langdon, Cincinnati.

H. T. Patrick, Chicago: I move that the thanks of the Section be extended to the Chairman for his address, and that it be referred to the Executive Committee. Carried.

"Trend of Modern Psychiatry and its Relation to General Medicine." John Punton, Kansas City, Mo. Discussed by F. Savary Pearce, Philadelphia; Daniel Brower, Chicago; R. H. Cook, Oxford, Ohio; McBride, Pasadena, Cal.; Dewey, Wauwatosa, Wis.; A. E. Sterne, Indianapolis; W. J. Herdman, Ann Arbor, Mich.; G. W. McCaskey, Fort Wayne, Ind., and Punton.

The Chairman named the following to serve as a Nominating Committee: H. T. Patrick, John Punton and W. Sinkler.

Dr. Patrick: As there is nothing to do to-morrow morning, and we have a very extensive program, I move that we have a morning session at 10 o'clock. Carried.

"A Contribution to the Study of Visual Disturbances in Brain Injury." William E. Gamble, Chicago. Discussed by H. T. Pershing, Denver; H. T. Patrick, Chicago; McBride, Los Angeles, Cal.; W. F. Eckley, Chicago, and Gamble.

"Epilepsy; a Clinical Study." J. G. Biller, Cherokee, Iowa.

"Pathology of Inebriety." T. D. Crothers, Hartford, Conn. Discussed by Petty, Memphis, Tenn.; A. E. Sterne, Indianapolis, and Crothers.

WEDNESDAY, MAY 6—MORNING.

The meeting was called to order at 10 a. m.

The minutes of the last meeting were read and approved.

The Secretary read a letter from the Chairman of the Section on Ophthalmology, stating that 2 o'clock, at the College of Pharmacy, Casey Wood would give a stereopticon demonstration of Dr. Lindsay Johnson's method of classifying the mammalia by the appearance of the fundus oculi. All members of the Association were cordially invited.

"Ambulatory Automatism." Hugh T. Patrick, Chicago. Discussed by Brainard, Los Angeles; Albert E. Sterne, Indianapolis; John Punton, Kansas City; Wharton Sinkler, Philadelphia; P. E. Archinard, New Orleans; W. J. Herdman, Ann Arbor, Mich.; F. W. Langdon, Cincinnati; C. C. Hersman, Pittsburg; F. Savary Pearce, Philadelphia; D. I. Wolfstein, Cincinnati, and Patrick.

WEDNESDAY, MAY 6—AFTERNOON.

"Penetrating Wound of Both Cerebral Hemispheres, with Recovery." W. S. Lindsay, Topeka, Kan. Discussed by H. T. Pershing, Denver; F. Savary, Pearce, Philadelphia; Brainard, Los Angeles; Albert E. Sterne, Indianapolis, and Lindsay.

The Nominating Committee recommended the following names for election: Chairman, F. Savary Pearce, Philadelphia; secretary, David I. Wolfstein, Cincinnati; member of the House of Delegates, F. W. Langdon, Cincinnati. It was moved and seconded that the report of the Nominating Committee be adopted. Carried.

"Relation of Epilepsy to Chronic Gastro-Intestinal Diseases." G. W. McCaskey, Fort Wayne, Ind.

"Neurasthenia and its Treatment by Actinic Rays." Albert E. Sterne, Indianapolis. Discussed by F. Savary Pearce, Philadelphia; David I. Wolfstein, Cincinnati; John Punton, Kansas City; W. J. Herdman, Ann Arbor, Mich.; C. C. Hersman, Pittsburg; F. W. Langdon, Cincinnati, and A. E. Sterne.

SYMPOSIUM ON RELATION OF PUBLIC SCHOOL METHODS TO PSYCHOSES.

"Relation of the Public School to the Seminary and College as to Psychoses." F. Savary Pearce, Philadelphia.

"Best Methods of Counteracting Psychoses Due to Strain and Stress." William J. Herdman, Ann Arbor, Mich.

The two papers were discussed by Haroid N. Moyer, Chicago; John Punton, Kansas City; J. H. McBride, Los Angeles; R. C. Moore, Omaha; T. A. Williams, East Bernard, Texas; A. E. Sterne, Indianapolis, and Daniel W. Brower, Chicago.

THURSDAY, MAY 7—MORNING.

Called to order at 10 o'clock.

Continuation of the discussion on the relation of public school methods to psychoses, by D. O. Wilkinson, Montibello, Ala.; Wharton Sinkler, Philadelphia; D. I. Wolfstein, Cincinnati; A. J. Pressey, Cleveland; C. C. Hersman, Pittsburg; Shelley, Atchinson, Kan.; T. A. Williams, East Bernard, Texas; C. C. Hersman, Pittsburg; J. H. McBride, Pasadena, Cal.; H. T. Patrick, Chicago; W. S. Lindsay, Topeka, Kan.; F. W. Langdon, Cincinnati; Albert E. Sterne, Indianapolis; F. Savary Pearce, Philadelphia, and William J. Herdman, Ann Arbor, Mich.

William J. Herdman, Ann Arbor, Mich., presented the following resolution:

Resolved, That we, the members of the Section on Nervous and Mental Diseases of the American Medican Association, are deeply conscious of the vital importance of the methods of education and school environments on the development of youth and are of the opinion that the time has arrived for the harmonious and helpful co-operation of educators and physicians in the work of education. In view of this belief on our part, be it further

Resolved, That we appoint a committee from our membership at this meeting, whose duty it shall be:

First. To collect, during the coming year, such exact information as may be accumulated, both in this country and in Europe, on the school methods in their relation to the physical and mental welfare of youth.

Second. To confer with leading educators everywhere with the view of eliciting information and opinions on the subject and of securing co-operation in efforts for improvement of methods.

Third. To report to the Section at its next annual session the results of their investigations, and formulate a plan for future and vigorous prosecution of such reforms as we may decide from their report are clearly needed.

In accordance with the above resolution, which was adopted, the Chairman the following committee: William J. Herdman, Ann Arbor, Mich., chairman; T. A. Williams, East Bernard, Texas; J. H. McBride, Los Angeles, Cal.; F. Savary Pearce, Philadelphia, and H. T. Patrick, Chicago.

John Punton inquired whether it would be possible to get the papers which were read before the Section on Nervous and Mental Diseases and the discussion thereon in book form, without waiting for the appearance of the transactions in THE JOURNAL of the American Medical Association.

The Chairman appointed Dr. Punton a committee of one to inquire into the matter and report at the afternoon meeting. (Report was in the negative.)

"Atrophy of Hand Muscles, with Localized Sensory Disturbances; Possible Early Syringomyelia." D. I. Wolfstein, Cincinnati. Discussed by H. T. Patrick, Chicago; Wharton Sinkler, Philadelphia; A. E. Sterne, Indianapolis; F. W. Langdon, Cincinnati, and D. I. Wolfstein, Cincinnati.

THURSDAY, MAY 7—AFTERNOON.

F. Savary Pearce reported that the committee which had been appointed in the morning to consider the relation of public school methods to psychoses had already held one meeting, and they hoped to make considerable progress before the next annual session of the Section.

"Ten Cases of Chronic Morphinism and Results of Treatment." A. J. Pressey, Cleveland, Ohio. Discussed by George E. Petty, Memphis, Tenn., and A. J. Pressey.

"The Nervous Phenomena Associated with Movable Kidney." Wharton Sinkler, Philadelphia. Discussed by A. P. Ohlmacher, Gallipolis, Ohio; R. C. Moore, Omaha; J. L. Miller, Chicago; A. R. Elliot, Chicago; A. C. Croftan, Chicago, and F. Savary Pearce, Philadelphia.

"A Consideration of the Neuroses of the Status Lympaticus." A. P. Ohlmacher, Gallipolis, Ohio. Discussed by D. I. Wolfstein, Cincinnati; A. P. Ohlmacher; H. T. Pershing, Denver; H. T. Patrick, Chicago; D. I. Wolfstein, and A. P. Ohlmacher.

"Carcinoma of Spine and Meninges Secondary to Cancer of the Breast." F. Savary Pearce, Philadelphia. Discussed by H. T. Pershing, Denver, and F. Savary Pearce.

"Some Toxemias in Relation to the Production of Nervous and Mental Diseases." Samuel Bell, Detroit.

"Treatment of Emotional Disturbances." Howell T. Pershing, Denver. Discussed by H. T. Patrick, Chicago; John Punton,

Kansas City; R. F. Turner, Memphis, Tenn.; F. Savary Pearce, Philadelphia, and H. T. Pershing.

The Chairman: I am pleased to announce that this completes the work of the Section on Nervous and Mental Diseases. We have listened to an excellent program, and have been able to complete it in three days by holding two daily sessions instead of one.

R. C. Moore, Omaha: I move that the thanks of the members of the Section be extended to the Chairman and Secretary for the admirable way in which they have conducted the proceedings. Unanimously carried.

Section on Cutaneous Medicine and Surgery.

TUESDAY, MAY 5—AFTERNOON.

The Section was called to order at 2 p. m. by the Chairman, John A. Fordyce, who gave an address on "The Modern Conception of Eczema." It was discussed by Zeisler, Illinois; Bulkley, New York; Ohmann Dumesnil, Missouri.

H. R. Varney, Detroit, read a paper on "Results in Radiotherapeutics and Clinical Conclusions." Discussed by Skinner, Connecticut; Zeisler, Illinois; Bulkley, New York; Hubbard, Tennessee; Campbell, Illinois; Edwards, Tennessee; Ohmann Dumesnil, Missouri; Duncan, Missouri; Guthrie, New York; Roussel, Louisiana; Varney, Michigan.

The paper of Louis E. Schmidt, Chicago, entitled "Clinical Results Obtained in the Use of Finsen's and Other Lights," was read by title.

M. L. Heidingsfeld, Cincinnati, read a paper entitled "Treatment of Syphilis by Injection." Discussed by Ohmann Dumesnil, Missouri; Kessler, Iowa; Anthony, Illinois; Schamberg, Pennsylvania; Zeisler, Illinois; Weiss, New York; Heidingsfeld, Ohio.

H. G. Anthony, Chicago, read a paper entitled "Fibroma Molluscum." Discussed by Heidingsfeld, Ohio; Bulkley and Fordyce, New York; Anthony, Illinois.

The next order of business being the appointment of a Nominating Committee, it was moved and carried that the Chair appoint a committee of three to report to-morrow. The Chair appointed Baum, Illinois; Vanderhook, Minnesota; Schamberg, Pennsylvania.

The Section adjourned to 2 p. m., Wednesday.

WEDNESDAY, MAY 6—AFTERNOON.

The Nominating Committee reported for chairman, Henry G. Anthony, Chicago; secretary, R. R. Campbell, Chicago; member of House of Delegates, Jay F. Schamberg, Philadelphia; alternate, G. W. Wende, Buffalo.

Paper, "Treatment of Leprosy," by A. H. Ohmann Dumesnil, St. Louis. Discussed by J. F. Schamberg, Pennsylvania; Duncan; Vanderhook; Roussell, Louisiana; J. A. Fordyce, New York, and Ohmann Dumesnil.

Papers of William S. Gotthell, entitled "Tuberculosis Cutis Frambesioldes Disseminata," and Eugene Carson Hay, Hot Springs, Ark., on "Syphilitic Fever," and Henry Stelwagon, Philadelphia, on "Larva Migrans," were read by title.

Paper, Joseph Zeisler, Chicago, "Notes on the Treatment of Lichen Planus." Discussed by Baum, Illinois; Schamberg, Pennsylvania; Dumesnil, Missouri; Heidingsfeld, Ohio; Duncan; Shelmire, Texas, and Zeisler.

It was voted not to accept the paper of Justin de Lisle.

Paper, "Papilloma of the Sole," by Douglas W. Montgomery, was read by title.

Paper, "Some Clinical Observations on Chicken-pox," by Jay F. Schamberg, Philadelphia. Discussion by Kessler; Baum, Illinois; Dumesnil, Missouri, and Shelmire, Texas.

Paper, "Diagnosis of Cutaneous Syphilis," by Isadore Dyer, New Orleans. Discussion by Anthony, Illinois; Heidingsfeld, Ohio, and Dyer, Louisiana.

Paper, "Report of a Case of Pemphigus Chronicus," by William Frick, Kansas City. No discussion.

Paper, "Notes on an Interesting Case of Lupus Vulgaris," by R. R. Campbell, Chicago. Discussion by Zeisler, Chicago; Anthony, Chicago; Duncan and Campbell.

THURSDAY, MAY 7—MORNING.

The clinic by Isadore Dyer at Charity Hospital was well attended. A number of most interesting cases were presented, the discussions on which were most valuable as well as highly instructive.

THURSDAY, MAY 7—AFTERNOON.

Paper, "Atrophia Cutis Idiopathica," by William S. Gotthell, New York, was read by title.

Paper, "Diagnosis of Smallpox," by A. W. Brayton, Indianapolis, was read in abstract. No discussion.

Paper, "Pathology and Treatment of Smallpox," by N. D. Brayton, Indianapolis, was read by title.

Paper, "Pityriasis Rosea," by Ludwig Weiss, New York. Discussion by Anthony, Illinois; Bulkley, New York; Brayton, Indiana; Heidingsfeld, Ohio; Fordyce and Weiss, New York.

Paper, "Scarlet Fever," by William L. Baum, Chicago. Discussion by Schamberg, Pennsylvania; Brayton, Indiana; Anthony, Illinois; Weiss, New York, and Baum, Illinois.

Paper, "Influence of the Menstrual Function on Certain Skin Diseases," by L. Duncan Bulkley, New York. No discussion.

On the suggestion of the Chairman a motion was made by Dr. Anthony, Illinois, seconded by Dr. Schamberg, Pennsylvania, and carried that the action taken yesterday in regard to the paper of Dr. de Lisle be reconsidered and the paper referred to the Executive Committee.

Dr. Weiss, New York, exhibited lantern slides illustrating his paper.

Dr. Heidingsfeld, Ohio, exhibited lantern slides in preliminary investigations of cutis atrophica.

"Paper, "A Case of Blastomycetic Dermatitis from Accidental Inoculation," by Newton Evans, Battle Creek, Mich. Discussion by Brayton, Indiana; Dyer, Louisiana; Heidingsfeld, Ohio; Anthony, Illinois; Fordyce, New York, and Evans, Michigan.

A vote of thanks was given Dr. Dyer and his assistants, Drs. Menage and Hopkins, for courtesies shown.

The Section then adjourned.

Section on Laryngology and Otology.

TUESDAY, MAY 5—AFTERNOON.

This Section was called to order at 2:18 p. m. The Chairman, George L. Richards, of Fall River, Mass., presided; J. F. Barnhill, Indianapolis, Secretary.

The Secretary announced the Section banquet for the evening, a clinic at the Throat Hospital between 9 and 10 a. m. Wednesday, and a buffet luncheon 12 to 2 p. m. Wednesday.

The Chairman announced that all the members of the Executive Committee were absent, and inasmuch as there impending some important matters for the consideration of this committee, the following were appointed members: O. Joachim, New Orleans; A. G. Woolen, Indianapolis, and C. M. Cobb, Boston.

The address of the Chairman was delivered by Geo. L. Richards.

"Report of Cases, Showing Instrument and Technic in the Cure of Deafmutism." Maury M. Stapler, Macon, Ga. Discussed by O. Joachim, New Orleans; B. M. Behrens, Memphis; C. M. Cobb, Boston; Cox, Rome, Ga.; R. C. Myles, New York; H. W. Loeb, St. Louis, A. W. de Roaldes, New Orleans; Snow, Syracuse, N. Y.; and Stapler.

On motion, discussions were limited to three minutes.

"Membranous Pharyngitis." John McReynolds, Dallas, Texas. Discussed by R. C. Myles, New York; B. M. Behrens, Memphis; F. W. Hilscher, Spokane; B. R. Shurly, Detroit, and McReynolds.

"Nasal Polypus; Origin and Treatment." Charles H. Baker, Bay City. Discussed by R. C. Myles, New York; H. W. Loeb, St. Louis; Miner, Detroit; C. M. Cobb, Boston; W. Scheppegrell, New Orleans; F. W. Hilscher, Spokane, and Baker.

"Diphtheria of the Nose." W. Scheppegrell, New Orleans, read by title.

On motion by Dr. Myles, seconded and unanimously passed, Dr. Scheppegrell was asked to give the Section a talk on the use of the *x*-ray.

The following Nominating Committee was appointed: Myles, New York; Loeb, St. Louis, and Pearce, Chicago.

WEDNESDAY, MAY 6—MORNING.

The Section met in the Eye, Ear, Nose and Throat Hospital at 9 a. m.

"Some Observations on the Removal of Diseased Tonsils" was read by Charles M. Robertson, Chicago, who also demonstrated his method of operating. [This was discussed later.]

The Section then repaired to the College of Pharmacy, reconvening at 10 a. m.

W. Scheppegrell, New Orleans, moved that the retiring Chairman be one of the representatives of the Section to the House of Delegates, and that he choose from the floor the other member. The motion was seconded and unanimously passed.

"The Necessity for an Early Diagnosis and Treatment in Acute Suppurative Affections of the Middle Ear." Frank D. Boyd, Fort Worth, Texas. Discussed by H. Dupuy, New Orleans; Philip Hammond, Atlanta; E. C. Ellett, Memphis; A. A. Kurk, Richmond; Harmon Smith, New York; Baker, Bay City, Mich.; Woodson, Birmingham; De Vilbiss, Toledo; J. F. Barnhill, Indianapolis; George L. Richards, Fall River, Mass.; Kate Baldwin, Philadelphia; Parker, Detroit; C. M. Cobb, Boston; J. F. Hill, Memphis; W. Scheppegrell, New Orleans, and Boyd.

A patient, from whom a necrosed arytenoid cartilage had been removed, was presented by W. Scheppegrell, New Orleans.

"Report of a Case of Empyema of the Frontal Sinus." C. A. Thigpen, Montgomery, Ala. Discussed by Myles, New York; Gordon King, New Orleans; O. T. Freer, Chicago; Pfingst, Louisville; George L. Richards, Fall River, Mass.; Homer Dupuy, New Orleans; E. E. Ingals, Chicago, and Thigpen.

The discussion of Charles M. Robertson's paper was then taken up, and was participated in by Hilscher, Spokane, Wash.; Miner, Detroit; J. F. Barnhill, Indianapolis; E. Fletcher Ingals, Chicago; Myles, New York; Loeb, St. Louis; George L. Richards, Fall River, Mass., and Robertson.

WEDNESDAY, MAY 6—AFTERNOON.

Convened at 2:35 p. m.

"Paraffin Injected Subcutaneously for the Correction of Nasal and Other Deformities." Harmon Smith, New York. Discussed by O. Joachim, New Orleans; J. F. Barnhill, Indianapolis; Robert C. Myles, New York; C. M. Cobb, Boston; E. Fletcher Ingals, Chicago, and Smith.

"The Special Influence of High Altitude on the Nose and Throat." S. E. Solly, Colorado Springs. Discussed by Melville Black, Denver; Sargent F. Snow, Syracuse, and Myles.

"A General Consideration of the Diseases of the Ethmoid Bones and Cells." Robert C. Myles, New York. Discussed by E. Fletcher Ingals, Chicago; Sargent F. Snow, Syracuse, and Solly.

"Non-Tubercular Hemorrhages of the Air Passages." L. F. Page, Indianapolis. No discussion.

"The Resection Operation for the Correction of Deflections of the Nasal Septum." Otto T. Freer, Chicago. Discussed by O. Joachim, New Orleans; J. F. Barnhill, Indianapolis; Schambaugh, Chicago; B. R. Shurly, Detroit; Gradle, Chicago; Hill, Memphis, and Freer.

R. C. Myles, New York, on behalf of the Nominating Committee, reported the following nominations: Chairman, J. F. Barnhill, Indianapolis; secretary, Otto T. Freer, Chicago; member of House of Delegates, George L. Richards, Fall River, Mass. These were elected.

THURSDAY, MAY 7—MORNING.

The Section convened at 9:30 a. m.

The following communication was read by the Secretary:

CINCINNATI, OHIO, April 27, 1903.

To the Secretary of the Section on Laryngology and Otology, American Medical Association:

Enclosed please find a resolution which was acted on by the Academy of Ophthalmology and Oto-Laryngology (formerly the Western Ophthalmologic and Oto-Laryngologic Association) at its regular annual meeting, which was held in Indianapolis, April 9 to 11.

Will you kindly read this resolution before your society at its next meeting, and if the sentiment expressed meets with the approbation of your members, will you see that a resolution endorsing the ideas inculcated is voted on by your organization?

Will you kindly notify me after the regular meeting of your society what action was taken in reference to the matter?

I enclose the names of six societies which have been invited to join this federation. Any suggestions which your organization might make in reference to enlarging the idea expressed, etc., will be gratefully received. DERRICK T. VAIL, Secretary.

THE ACADEMY OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY.

At the annual meeting of the Academy of Ophthalmology and Oto-Laryngology (formerly known as the Western Ophthalmologic and Oto-Laryngologic Association), held in Indianapolis, April 9, 10 and 11, 1903, the following resolution was proposed by the president, Dr. William L. Ballenger, and seconded by the secretary, Dr. Derrick T. Vail, and adopted by the academy:

Resolved, That the Academy of Ophthalmology and Oto-Laryngology deem it wise to correspond with all other American associations devoted to the consideration of diseases of the eye, ear, nose and throat, with a view of establishing a federation of the said societies. The said federation to meet in joint session once every five years for the consideration of scientific and other subjects pertaining to the eye, ear, nose and throat.

It is suggested that the first meeting of the proposed federation be held at a time and place to be agreed on in the year 1906, or at such other time as may be selected.

WILLIAM L. BALLENGER, President.
DERRICK T. VAIL, Secretary.

Societies invited to joint the federation: American Laryngological Association; American Laryngological, Rhinological and Otological Society; American Otological Society; Section on Laryngology and Otology, American Medical Association; Section on Ophthalmology, American Medical Association; American Ophthalmological Society; Academy of Ophthalmology and Oto-Laryngology.

W. Scheppegrell, New Orleans, Chairman *pro tem*, said: I have had the honor at one time to be the president of the Academy of Ophthalmology and Oto-Laryngology, and I would therefore invite your especial consideration to this subject. I think very highly of this proposition. It would do a great deal to bring the different elements and societies together, and it might do us a great deal of good. We would derive a still greater benefit if we had a wider field to draw from. Therefore, I would suggest that someone make a motion that a special committee be appointed by the Chair to take this matter up and make such arrangements with the Academy of Ophthalmology and Oto-Laryngology as may further this purpose.

D. A. Kuyk, Richmond, said: It gives me great pleasure to move that the Chairman appoint a committee of three, looking to the furtherance and completion of the suggestions just made.

The motion was seconded and passed unanimously.

"How Far Should the Specialist in Rhinology and Otology Presume to Treat the Systemic Condition?" C. M. Cobb, Boston. Discussed by G. V. Woolen, Indianapolis; Sargent F. Snow, Syracuse; Schambaugh, Chicago; D. A. Kuyk, Richmond; W. Scheppegrell, New Orleans; Charles H. Baker, Bay City, Mich.; Joachim, New Orleans; Loeb, St. Louis; Crum, Utica; George L. Richards, Fall River, and Cobb.

"Report of Three Cases: 1. Case of Prolonged Intubation. 2. Esophageal Obstruction Due to Swallowing an Upper Alveolar Plate. 3. A Partial Extirpation of the Larynx for Carcinoma." George E. Cole, Buffalo. Discussed by B. R. Shurly, Detroit; D. A. Kuyk, Richmond; Otto T. Freer, Chicago, and Cott.

"The Early Manifestations of Laryngeal Tuberculosis; Their Recognition and Treatment." H. H. Briggs, Asheville. Discussed by Schuster, El Paso, Texas, and Briggs.

"The Immediate Relief of Hysterical Manifestations in the Larynx by Suggestion." H. W. Loeb, St. Louis. Discussed by D. A. Kuyk, Richmond; Hirschel, Spokane; J. F. Barnhill, Indianapolis; H. Dupuy, New Orleans; C. M. Cobb, Boston, and Loeb.

"Some Recent Experiences with Chronic Suppurations of the Ear." Philip Hammond, Boston. Discussed by H. Dupuy, New Orleans; Hirschel, Detroit; J. F. Barnhill, Indianapolis; C. M. Cobb, Boston; George L. Richards, Fall River, and Hammond.

The following committee was appointed by the Chair to consult with the Academy of Ophthalmology and Oto-Laryngology, as comprehended in the motion made by D. A. Kuyk: H. W. Loeb, St. Louis, representing the Academy; Sargent F. Snow, Syracuse, representing the American Laryngological, Rhinological and Otological Society, and C. H. Baker, Bay City, representing this Section.

THURSDAY, MAY 7—AFTERNOON.

The Section convened at 2:15 p. m.

The election of officers resulted thus: President, J. F. Barnhill, Indianapolis; secretary, Otto T. Freer, Chicago; member of House of Delegates, George L. Richards, Fall River, Mass.

"(a) The Distribution of Blood Vessels in the Labyrinth of the Ear, with Exhibition of Preparation and Drawing. (b) Wood's Metal Casts of the Middle Ear, with the Exhibition of Preparation and Lantern Demonstration." George E. Schambaugh, Chicago.

S. E. Solly, Colorado Springs, moved that the Section pass a vote of thanks for the beautiful exhibition of original work by Dr. Schambaugh. The motion was seconded by J. F. Barnhill, Indianapolis, and passed unanimously.

"Perisinusal Abscess of Lateral Sinus, with Metastases in Liver and Sterno-Clavicular Arthritis." Gordon King, New Orleans.

"Efficacy of Treatment of Acute Suppurative Otitis by Aseptic Drainage." H. Gradle, Chicago.

"The Great Value of Drainage and Ice in the Early Stages of Mastoiditis." Sargent F. Snow, Syracuse.

The above two papers were discussed by J. F. Barnhill, Indianapolis; Ledbetter, Birmingham, Ala.; Brown, Minneapolis; Hammond, Boston; George L. Richards, Fall River; C. M. Cobb, Boston; Hilsacher, Spokane; D. A. Kuyk, Richmond; Donovan, Dubuque, Mont.; Stapler, Macon, Ga.; Gradle and Snow.

"Deformity of the Nasal Septum in Atrophic Rhinitis. Shall We Operate?" Kate W. Baldwin, Philadelphia.

On motions, duly seconded, the papers by Drs. Behrens and Joachim were read by title and referred to the Executive Committee.

Adjourned.

Section on Materia Medica, Pharmacy and Therapeutics.

TUESDAY, MAY 5—AFTERNOON.

The meeting was called to order by the Chairman, Solomon Solis-Cohen, at 2:35 p. m.

The Committee on Dosage of Liquid Medicines, Frank Woodbury, H. C. Wood, Jr., and A. Eshner, Philadelphia, made its report.

On motion the report was received and the committee discharged.

The Committee on Nerve Nostrums and Drug Addictions, A. W. Baer, Chicago; W. J. Robinson, New York, and H. C. Wood, Jr., Philadelphia, made its report.

On motion the report was received and the committee discharged.

The Secretary read a communication from the American Pharmaceutical Association, inviting this body to appoint delegates to the American Pharmaceutical Association.

The Chairman read his address.

The paper of Arthur R. Cushney, Ann Arbor, entitled "Is Pharmacologic Action Determined by Chemical Structure or by Physical Characters?" was read by Dr. Burdick.

M. Vejux Tyrode, Boston, read a paper entitled "The Relations Between the Pharmacologic Actions of Drugs and Their Therapeutic Indications."

The paper of Torald Sollmann, Cleveland, Ohio, entitled "Research Problems of Pharmacology," was read by the Chairman.

The paper, "The Physiologic Effect of the Ions," by Ralph N. Webster, Chicago, was read by title.

Discussion on all these papers was participated in by H. C. Beates, Philadelphia; W. J. Robinson, New York; W. W. Tompkins, West Virginia, and M. V. Tyrode.

A paper entitled "Mechano-Therapy, Massage, Bone Setting and Osteopathy," by John Madison Taylor, Philadelphia, was read by title.

On motion the recommendations of the Committee on Dosage of Liquid Medicines were adopted, as follows:

To the House of Delegates: The following resolutions have been adopted by the Section on Materia Medica, Pharmacy and Therapeutics, and the delegate from that Section instructed to present them to the House of Delegates, with the recommendation that they be adopted by the Association:

Resolved, That teachers of medicine and pharmacy, editors of medical and pharmaceutic journals and authors of text-books are respectfully requested to give precedence to the metric method in the writing of all medical formulas and that, for the administration of doses of less than a teaspoonful, the quantity be stated in drops delivered from a standard medicine dropper or pipette of three millimeters external diameter, which will deliver twenty drops of water at 15 C., which will measure one cubic centimeter when dropped at the rate of one per second, and that the teaspoonful be considered as equivalent to five cubic centimeters and that the tablespoonful be considered as equivalent to fifteen centimeters; and

Resolved, That the orthography, abbreviations, etc., of the International Bureau, or as revised by the National Bureau of Standards at Washington, shall also be recommended for adoption in medical and pharmaceutic publications; and

Resolved, That a copy of these resolutions be transmitted to the Committee of Revision of the United States Pharmacopeia for 1900, with the request that they be incorporated, as far as possible, in the United States Pharmacopeia.

On motion the recommendations of the Committee on Nerve Nostrums and Drug Addictions were adopted, as follows:

To the House of Delegates: The following resolutions have been adopted by the Section on Materia Medica, Pharmacy and Therapeutics and the delegate from that Section to the House of Delegates instructed to present them to the House of Delegates.

In view of the spread in the growth of the use and abuse of proprietary remedies, the Section recommends:

1. That newspapers which do not print objectionable medical advertisements are entitled to and should receive the favor and preference of medical men.

2. That articles on the dangers arising from the use of quack nostrums should be written for such newspapers for publication.

3. That the Committee on National Legislation be asked to consider the feasibility of the introduction in the next House of Representatives of an alternate measure prohibiting or limiting the sale of poisonous and dangerous patent medicines.

4. That no medicinal preparation for internal use, as distinguished from antiseptics, disinfectants, cosmetics and dietetics, advertised as a remedy or cure to the laity, is entitled to the patronage of physicians, nor should such be admitted to the pages of the medical journals, nor to the exhibitions of the American Medical Association.

5. That manufacturers be requested to print the scientific or chemical names under the trade name of all pharmaceutic or chemical preparations.

6. That the general plan and object of the National Bureau of Medicines and Foods are entitled to a further careful investigation by a special committee of the American Medical Association.

On motion, Delegate Hill was instructed to present to the House of Delegates the recommendations of these committees.

On motion of Dr. Hill it was resolved that a committee of three be appointed, the Chairman to be one member, to draft a memorial to the Business Committee of the House of Delegates to oppose the contemplated change in the title of this Section by omitting the word "therapeutics."

The committee was Drs. Cohen, Beates and Hill.

The Chair appointed the Nominating Committee, as follows: Drs. Robinson, chairman, Tompkins and Black.

C. A. Mayo, New York, delegate from the American Pharmaceutical Association to the Section, on invitation by the Chairman, briefly responded for this association.

Dr. Robinson moved that three delegates be appointed to attend the meeting of the American Pharmaceutical Association. Seconded and carried.

On motion a resolution was adopted looking to the admission as associate members reputable pharmacists who are members of the American Pharmaceutical Association.

On motion, Dr. Hill was instructed to present this resolution to the Business Committee of the House of Delegates.

On motion adjourned to 9:30 a. m.

WEDNESDAY, MAY 6—MORNING.

The meeting was called to order by the Chairman at 9:50 a. m.

The minutes of the previous session were read, corrected and approved.

On motion the paper entitled "The Chemistry of Ergot," by A. B. Lyons, Detroit, was read by title.

Laura House Bronson, Iowa City, Iowa, read a paper entitled "Mercury." Discussion by Oliver T. Osborne, New Haven; W. J. Robinson, New York; W. W. Tompkins, West Virginia; S. Solis-Cohen, Philadelphia, and Bronson.

On motion W. S. Hall's paper was postponed to the afternoon session.

Arthur R. Elliott, Chicago, read a paper entitled "The Limitations of the Antidiabetic Diet." Discussion by H. C. Beates, Philadelphia; A. C. Croftan, Chicago; O. T. Osborne, Connecticut; W. J. Robinson, New York; W. B. Hill, Milwaukee; E. T. Shelley, Kansas; H. H. Moody, Alabama; G. W. Webster, Chicago; W. W. Tompkins, West Virginia; the Chairman, and A. R. Elliott.

It was moved that an effort be made to read and discuss all papers on the program by Thursday afternoon. Seconded and carried.

On motion adjourned to 2 p. m.

WEDNESDAY, MAY 7—AFTERNOON.

Meeting called to order by Chairman at 2:15 p. m.

T. D. Crothers, Connecticut, read a paper entitled "Demonstrated Pathologic Effects of Alcohol."

O. T. Osborne, Connecticut, read a paper entitled "The Legitimate Therapeutic Uses of Alcohol."

Both papers were discussed by J. H. Musser, Philadelphia; J. A. Storck, New Orleans; W. J. Robinson, New York; A. C. Croftan, Chicago; C. S. N. Hallberg, Chicago, and the Chairman.

Paper by A. A. Eshner, Philadelphia, on "The Management of Fever in General," was read by title.

J. H. Musser, Philadelphia, read a paper entitled "The Therapeutic Value of Spinal Puncture for the Cerebral Symptoms of Typhoid Fever." Discussed by W. J. Robinson, New York; W. W. Tompkins, West Virginia; O. T. Osborne, Connecticut, and Musser.

J. A. Storck, New Orleans, read a paper entitled "Intestinal Antiseptics; Their Uses and Limitations." Discussed by O. T. Osborne, Connecticut; George F. Butler, Michigan; W. J. Robinson, New York; B. C. Keister, Virginia, and Storck.

W. S. Hall, Chicago, read a paper entitled "The Absorption of Iron from the Alimentary Canal." Discussed by G. F. Butler, Michigan; W. W. Tompkins, West Virginia, and C. S. Chamberlain, Ohio.

W. J. Robinson, New York, read a paper entitled "The Composition of Some of the So-called New Synthetics." Discussed by George F. Butler, Michigan; C. A. Mayo, New York; W. W. Tompkins, West Virginia; J. A. Storck, New Orleans; Rawlins, Tennessee; B. C. Keister, Virginia; C. E. Skinner, Connecticut; H. N. Leavell, Kentucky; C. S. N. Hallberg, Chicago; C. S. Chamberlain, Ohio; B. Pirosh, Chicago, and Robinson.

Dr. Storck moved that a committee of three be appointed by the Chair to consider the suggestion contained in Dr. Robinson's paper, with instructions to report to-morrow, with such recommendations as they may deem appropriate.

The Chair appointed Drs. Butler, Tompkins and Hallberg.

On motion adjourned to 9:30 a. m.

THURSDAY, MAY 7—MORNING.

Meeting was called to order by the Chairman at 9:40 a. m.

Minutes of previous day read and approved.

N. S. Davis, Jr., Chicago, read a paper entitled "Exercise as a Mode of Treatment in Heart Diseases." Discussion by H. H. Moody, Alabama; W. W. Tompkins, West Virginia; the Chairman and Davis.

On motion, the paper entitled "Recent Advances in Actino-Therapy," by W. S. Gotthelf, New York, was read by title.

Clarence E. Skinner, New Haven, read a paper entitled "Superheated Air in Therapeutics." Discussion by W. J. Robinson, New York; W. W. Tompkins, West Virginia, and Skinner.

C. S. N. Hallberg, Chicago, read a paper entitled "The United States Pharmacopeia." Discussion by W. J. Robinson, New York; J. V. Kelly, Philadelphia; Pirosh, Chicago; W. B. Hill, Wisconsin; O. T. Osborne, Connecticut; H. A. Moody, Alabama; F. Weber, Milwaukee; Chamberlain, Ohio, and Hallberg.

W. B. Hill, Milwaukee, read a paper entitled "The Limitations in the Use of Aconite and Veratrum Viride." Discussion by F. Weber, Milwaukee; H. A. Moody, Alabama; W. J. Robinson, New York; W. W. Tompkins, West Virginia; C. S. Chamberlain, Ohio; Kahle, Indianapolis; Leavell, Louisville; the Chairman and Hill.

Caswell A. Mayo, New York, read a paper entitled "Spurious Creosotes." Discussion by B. C. Keister, Virginia; W. W. Tompkins, West Virginia, and Mayo.

The following resolution was unanimously adopted:

Resolved, That, in the opinion of the Section on Materia Medica, Pharmacy and Therapeutics, the term "creosote" should be restricted solely to true wood-tar creosote, owing to the great danger arising from the present indiscriminate use of the term; and prescribers are requested to specify beech-tar creosote in order to properly distinguish the article from coal-tar creosote.

On motion adjourned to 2:30 p. m.

THURSDAY, MAY 7—AFTERNOON.

Meeting called to order by the Chairman at 2:35 p. m.

The Nominating Committee made the following report: For chairman, Oliver T. Osborne, New Haven, Conn.; secretary, Carl S. N. Hallberg, Chicago; delegate, W. J. Robinson, New York.

On motion the report of the committee was accepted and the officers nominated were declared elected.

George F. Butler, Alma, Michigan, read a paper entitled "Drugs Used in Nervous Diseases." Discussion by the Chairman.

Bittle C. Keister, Roanoke, Va., read a paper entitled "The Mind as a Causative and Therapeutic Factor in Medicine." Discussion by Ballard, Memphis; Black, La Grange, Ga.; George F. Butler, Michigan; the Chairman; C. S. Chamberlain, Ohio; W. J. Robinson, New York; Betty, Memphis; W. W. Tompkins, West Virginia; H. A. Moody, Alabama, and Keister.

The committee appointed to report on the suggestions contained in Dr. Robinson's paper made the following report:

This committee, to which the paper of W. J. Robinson, New York, was referred, while fully agreeing with the sentiment expressed by the author, would suggest, in view of the present status of this question of proprietary medicine, that the paper may be so modified by the Editor of THE JOURNAL as to avoid any undesirable complications.

The committee, in view of the importance of the subject, respectfully makes these recommendations:

1. That, inasmuch as the primary cause of the proprietary medicine evils is the lack of knowledge on the part of medical graduates, the course in materia medica should be supplemented during the last year in connection with therapeutics by a course in pharmacy especially designed to qualify the student to formulate his own prescriptions in the most eligible manner.

2. A closer adherence to the United States Pharmacopeia and the National Formulary as a basis for text-books and instruction will lead to a greater appreciation of the official drugs and chemicals and formulas of the recognized medical authorities.

3. That some well-considered plan should be inaugurated for the differentiation of the thousands of medicinal articles and specialties to remove the present existing confusion among physicians and pharmacists alike, and to afford some kind of criteria to their ethical status, and to separate the true from the false.

4. That the revision of the patent laws, as applied to medicines, trade-marks and copyrights should be demanded.

5. That the primary object of a medical journal published by medical men or societies should be to chronicle the work of the profession it represents, and the general diffusion of medical knowledge, and not for the purpose of making money, commercial domination through the advertising privileges being derogatory to the profession.

6. It is recommended that a committee of competent persons be appointed to act as an advisory board in determining the limitations and privileges of advertisements appearing in THE JOURNAL and in the exhibits of the American Medical Association.

On motion this report and recommendations were adopted and the committee discharged.

The Chair announced the following delegates to the American Pharmaceutical Association: Hallberg, Robinson, Black, Tompkins and Leavell.

The Secretary read a communication from the U. S. census office.

On motion the following committee was appointed to further consider the subject of suggestions contained in Dr. Robinson's paper and the report of the previous committee and report at the next session of this body, viz.: Moody, Robinson and Hallberg.

On motion a vote of thanks was tendered the trustees of the Carondelet Street M. E. Church for the use of their building; to the Committee of Arrangements and the medical profession of New Orleans and Louisiana for courtesies extended.

On motion a vote of thanks was tendered the Chairman and Secretary.

On motion adjourned, to meet in Atlantic City in 1904.

Section on Pathology and Physiology.

TUESDAY, MAY 5—AFTERNOON.

Called to order at 2:30 p. m.

Address by the Chairman, Victor C. Vaughan of Ann Arbor, Mich.

Abstract of Papers 1 to 8, being contributions from the Hygienic Laboratory of the University of Michigan, reported by Victor C. Vaughan, director.

(1) "The Chemistry of the Bacillus Coli Communis," by Mary F. Leach, Ann Arbor.

(2) "The Chemistry of the Bacillus Typhosus," by May Wheeler, Ann Arbor.

(3) "The Toxicity of the Intracellular Substance of Bacillus Typhosus," by Louis M. Gelston, Ann Arbor.

(4) "The Anthrax Toxin," J. Walter Vaughan, Ann Arbor.

(5) "The Intracellular Toxin of Bacillus Pyocyaneus," by Daniel McIntyre, Ann Arbor.

(6) "A Preliminary Chemical Study of the Hepatic Cells of the Ox," Frank Spencer and Frederick Munson, Ann Arbor.

(7) "The Toxicogenic Bacteria Found in Drinking Water," William G. Carhart, Ann Arbor.

(8) "The Chemical Tests for Morphin in the Presence of the Products of Bacterial Decomposition," by Myron W. Clift, Ann Arbor.

Discussion on the above by Henry A. Christian, Boston; A. C. Croftan, Chicago; W. S. Carter, Galveston; Joseph McFarland, Philadelphia.

The secretary made announcement of the banquet.

Paper by Walter L. Bierring, Iowa City, Iowa: "Multiple Periosteal Sarcomata of the Cranium, with Involvement of Retroperitoneal Lymph Nodes and Attending Severe Anemia.

Appointment of Nominating Committee: E. R. LeCount, Chicago; W. L. Bierring, Iowa City; Frank B. Wynn, Indianapolis.

Discussion of Dr. Bierring's paper by E. R. LeCount, Chicago, and Henry A. Christian, Boston.

WEDNESDAY, MAY 6—MORNING.

Paper by E. A. de Schweinitz, Washington, D. C., read by Joseph McFarland, Philadelphia. Discussed by Dorset, Washington, D. C.; L. Hektoen, Chicago; Victor C. Vaughan, Ann Arbor; Joseph McFarland, Philadelphia.

Paper by Joseph McFarland, Philadelphia: "Studies of Antirennene." Discussed by L. Hektoen, Chicago; J. W. Foss, Phœnix, Ariz.

Paper by W. S. Carter, Galveston, Tex.: "The Protoplasmic Activity of the Renal Epithelium as Determined by the Elimination of Pigments Injected Into the Circulation." Discussed by E. R. LeCount, Chicago.

Paper by L. W. Dean, Iowa City, Iowa: "The Influence of Consanguinity on the Organs of Special Sense, Especially on the Organs of Vision." Discussed by J. W. Foss, Phœnix, Aris.

Paper by J. W. Foss, Phœnix, Ariz.: "Streptococcic Infection of the Lungs, Successfully Treated by Antistreptococcic Serum." Discussed by Guido Bell, Indianapolis; H. N. Graves, Georgetown, Tex.; W. S. Carter, Galveston; Louis Leroy, Nashville, Tenn.

Nominating Committee reported as follows: Chairman, Joseph McFarland, Philadelphia; secretary, Henry T. Christian, Boston; delegate, A. P. Ohlmacher, Gallipolis, Ohio, all of whom were elected.

WEDNESDAY, MAY 6—AFTERNOON.

Paper by J. M. Frazier, Belton, Tex. Discussed by H. B. Ward, Lincoln, Neb.

Paper by Henry B. Ward, Lincoln, Neb.: "Precision in the Determination of Human Parasites." Discussed by Frank B. Wynn, Indianapolis; W. L. Bierring, Iowa City; Allen J. Smith, Galveston, Tex.

Paper by Thomas S. Cullen, Baltimore, Md.: "Condition of the Endometrium in Case of Uterine Myomata." No discussion.

Paper by Louis Leroy, Nashville, Tenn.: "A Case of Aerogenes Capsulatus Infection of the Neck." Discussed by L. Hektoen, Chicago.

Paper by Henry A. Christian, Boston: "The Neuroglia and the Ependymal Epithelium of Teratoid Tumors." Discussed by L. Hektoen.

Paper by L. Hektoen, Chicago: "A Case of Short-Limbed Dwarfism," illustrated with lantern slides.

Paper by E. R. LeCount, Chicago, in the name of Peter Bassoe, Chicago: "A Case of Gigantism and Leontiasis Ossea," with lantern demonstration.

Paper by F. G. Novy and W. J. McNeal, Ann Arbor: "The Cultivation of Trypanosoma Lewisii." Discussed by H. B. Ward, Lincoln, Neb.

Adjourned, after vote of thanks to the retiring officers.

THURSDAY, MAY 7—AFTERNOON.

Paper by Newton Evans and F. J. Otis, Battle Creek, Mich.: "The Morphology and Biology of the Parasites of Blastomycetic Dermatitis," with lantern demonstration. No discussion.

Paper by Claude A. Smith, Atlanta, Ga.: "Further Observations of Ankylostomiasis in the South. Discussed by H. B. Ward, Lincoln, Neb.

Paper by J. G. Holmes, Chicago, read by W. S. Hall, Chicago: "The Working Capacity of a Muscle. Discussed by Henry Sewall, Denver.

Demonstration of new physiologic apparatus. Winfield S. Hall, Chicago.

On motion the following papers were read by title:

W. S. Newcomet, Philadelphia: "Tissue Changes under X-Ray Influence."

F. Robert Zeit, Chicago: "Endothelioma of the Uterus."

Final adjournment.

NAMES OF THOSE REGISTERED AT THE NEW ORLEANS SESSION.

We give below the names and residences of those who registered at New Orleans, at the fifty-fourth annual session of the American Medical Association. About 160 failed to indicate any preference as to sections. Through an error, discovered too late to allow a correct list to be prepared, these names were incorporated in the list of those registering in the Section on Practice of Medicine, but not in the summary below.

SUMMARY BY SECTIONS.

Section on Practice of Medicine	662
Section on Obstetrics and Diseases of Women	140
Section on Surgery and Anatomy	628
Section on Hygiene and Sanitary Science	25
Section on Ophthalmology	151
Section on Diseases of Children	44
Section on Stomatology	11
Section on Nervous and Mental Diseases	40
Section on Cutaneous Medicine and Surgery	28
Section on Laryngology and Otology	52
Section on Materia Medica, Pharmacy and Therapeutics	20
Section on Pathology and Physiology	32
Registered without expressing preference as to Section	160
*Miscellaneous	13
Total	2,006

* This includes those whose names or addresses it was impossible to verify and which have been omitted from the list of names below.

SUMMARY BY STATES.

Alabama	66	Massachusetts	26
Arizona	3	Michigan	73
Arkansas	46	Minnesota	37
California	24	Mississippi	101
Colorado	22	Missouri	68
Connecticut	11	Montana	5
Delaware	2	Nebraska	22
District of Columbia	11	New Hampshire	4
Florida	8	New Jersey	18
Georgia	27	New Mexico	3
Illinois	189	New York	71
Indian Territory	7	North Carolina	12
Indiana	103	North Dakota	2
Iowa	73	Ohio	139
Kansas	17	Oklahoma	3
Kentucky	82	Oregon	2
Louisiana	311	Pennsylvania	114
Maine	3	Rhode Island	5
Maryland	22	South Carolina	5
South Dakota	5	Virginia	17
Tennessee	73	Washington	7
Texas	84	West Virginia	12
Utah	5	Wisconsin	62
Vermont	6	Wyoming	1

The total registration in 1900 at the Atlantic City session was 2,019; in 1901 at St. Paul, 1,806; in 1902 at Saratoga Springs, 1,425; in 1903, at New Orleans, 2,006.

Section on Practice of Medicine.

Alcorn, Edw., Houstonville, Ky.
Ambler, C. P., Asheville, N. C.
Archinard, John J., New Orleans.
Ashbaugh, A., Denver.
Acker, T. J., Croton-on-Hudson, N. Y.
Arnold, L. W., Florence, Ala.
Amster, L., Atlanta, Ga.
Anders, J. M., Philadelphia.
Arnold, J. H., Versailles, Ky.
Amendson, A. C., Cambridge, Wis.
Andrus, S. C., Rockford, Ill.
Allee, W. S., Olean, Mo.
Allison, Hartwell L., Bayou La Chute, La.
Allison, J. S., Monroe, La.
Allain, A. A., Bayou Goula, La.
Alcorn, A. J., Chicago.
Ayo, S. A., Thibodeaux, La.
Anderson, Wm. E., Farmville, Va.
Allen, J. C., Baton Rouge, La.
Alford, J. M., Ellisville, Miss.
Abbott, Louis Lee, New Orleans.
Allexander, M. J., Tunica, Miss.
Ambler, C. P., Asheville, N. C.
Blair, A. McN., Buffalo, N. Y.
Bayon, H., New Orleans.
Bell, Geo. S., New Orleans.
Brookes, J. S., Robinsonville, Miss.
Burns, Wm. B., Memphis, Tenn.
Bass, C., Columbus, Miss.
Browne, M. S., Winchester, Ky.
Butler, J. T., Brookhaven, Miss.
Berry, R. D., Springfield, Ill.
Brown, G. A., Bear Poplar, Ill.
Brown, J. S., Salisbury, N. C.
Branch, B. L., Collierville, Tenn.
Biener, Geo., Port Allen, La.
Bohanon, J. G., Greensville, Ky.
Braun, W. T., Memphis, Tenn.
Brooks, Harriet B., Saginaw, Mich.
Benbrook, J. T., Rockwall, Tex.
Brady, C. Mlo, New Orleans.
Burns, W. W., Polo, Ill.
Bruner, Benj. L., Hardyville, Ky.
Buquoi, J. F., Pt a la Hache, La.
Brister, S. L., Greenwood, Miss.
Bonnett, J. D., Columbus, Ohio.
Ballowe, H. L., Diamond, La.
Bass, W. H., Agr. College, Miss.
Bennett, W. C., Mt. Gilead, Ohio.
Black, Wm. T., Memphis, Tenn.
Barlow, E. F., Hermpt, Ark.
Burrows, H. H., New Boston, Tex.
Boggess, W. F., Louisville, Ky.
Brunning, Francis, Cincinnati.
Brayton, W., Indianapolis.
Boggs, W. R., Macon, Ill.
Burlingame, D. E., Elgin, Ill.
Bermus, Wm. M., Jamestown, N. Y.
Bowers, W. C., Lebanon, Kan.
Broadstreet, S. C., Mt. Pleasant, Tex.
Beard, Frank M., Shelbyville, Ky.
Bush, A. E., Sligo, La.
Barcus, Paul J., Crawfordsville, Ind.
Broldrick, Jas. P., Boston.
Brown, J. A., Germantown, Ohio.
Braudon, John W., Clarksville, Tenn.
Burroughs, H. S., Pittsburg, Pa.
Barry, Wm. R., Emory, Tex.
Bartlett, Rufus, Chicago.
Ball, Otho F., St. Paul, Minn.
Barron, A. F., St. Francisville, La.
Bernus, W. M., Jamestown, N. Y.
Brown, Everett D., Decatur, Ill.
Barnette, J. Z., Bon Aml, La.
Berry, W. T., Oakton, Ky.
Butterworth, W. W., N. Orleans.
Bronson, Laura Howe, Iowa City, Iowa.
Bird, Maurice D., Marinette, Wis.
Bucklin, G. W., Muncie, Ind.
Burroughs, J. A., Ashville, N. C.
Bowles, Marion K., Joliet, Ill.
Brundage, N. E., Delphor, Ohio.
Brayton, C. E., Stonington, Conn.
Burbeck, Chas. H., Troy, N. Y.
Boyd, James P., Akron, Ohio.
Bodine, J. M., Louisville, Ky.
Barrier, J. M., Delhi, La.
Batten, J. M., Downington, Tenn.
Barger, J. M., Darlington, Mo.
Buehler, W. S., Wernersville, Pa.
Bailey, Samuel, Mt. Ayr, Iowa.
Billings, Frank, Chicago.
Bourland, I. N., Equality, Ill.
Callison, E. C., Brashear, Mo.
Carruth, F. H., Lobdell, La.
Cottle, C. C., Marshalltown, Iowa.
Cunningham, T. E., Cambridge, Mass.
Collins, E. E., Williamsport, Tenn.
Callan, John, New Orleans.
Claytor, T. A., Washington, D. C.
Chaille, S. E., New Orleans.
Chenault, J. C., England, Ark.
Chambers, Chas. Kasson, Minn.
Clarke, Robt. C., Pittsburg.
Cobleigh, E. A., Chattanooga, Tenn.
Collings, H. P., Hot Springs, Ark.
Champlin, John, Westerly, R. I.
Cooke, H. C., Hattiesburg, Miss.
Curtis, G. Lenox, New York.
Causon, J. C., Valparaiso, Ind.
Castellaw, A. L., New Orleans.
Campbell, R. D., Grand Forks, N. D.
Croftan, A. C., Chicago.
Clay, E. M., Renville, Minn.
Conn, Jos., New Orleans.
Campbell, James, Elgin, Ill.
Carson, L. O., New Argent, Ind.
Crouch, H. T., Bardwell, Ky.
Cole, Geo. L., Los Angeles, Cal.
Calhoun, C. D., Elburn, Ill.
Crow, A. M., Kansas City, Mo.
Cline, Isaac M., New Orleans.
Cusachs, P. L., New Orleans.
Cummings, D. J., Brownstown, Ind.
Colvin, S. J., Minden, La.
Chapman, W. C., Toledo, Ohio.
Crockett, L. A., Indianapolis, Ind.
Cissel, Joseph K., Loretto, Ky.
Conklin, S. A., Canton, Ohio.
Crisler, Julius, Jackson, Miss.
Cole, G. E., Girard, Kan.
Carter, Calvin, Brookeville, Ind.
Carleton, J. C., Bonham, Texas.
Campbell, R. C., Shreveport, La.
Connerly, T. W., San Angelo, Tex.
Campbell, A. D., Cleveland, Ohio.
Caywood, Robert J., Piqua, Ohio.
Chamberlain, L. C., New Orleans.
Christopher, W. H., London, Ohio.
Calvert, W. J., St. Louis.
Charbonnet, A., Charbonnet, New Orleans.
Crabill, R. J., S. McAlester, I. T.
Campbell, C. L., Sheradenville, Pa.
Cannon, G. E., Jonesboro, La.
Crummer, B. F., Omaha.
Camp, E. T., Gadsden, Ala.
Crockett, S. S., Nashville, Tenn.
Cooper, J. F., Elmwood, Ill.
Carruth, R. McG., New Roads, La.
Chamberlain, J. C., Cincinnati.
Carroll, J. R., Henderson, Tenn.
Cameron, D. A., Alpena, Mich.
Catalano, N., New Orleans.
Catchings, E. E., Woodville, Miss.
Cravens, M. H., Arlington, Texas.
Crocker, M. M., Lordsburg, N. M.
Caverly, O. M., Atlanta, Texas.
Cushman, M. R., Abbeville, La.
Crampton, Chas., Ala.
Cawdrick, E. E., Enid, Okla.
Clough, E. L., Beaumont, Texas.
Cunningham, R. C., Booneville, Miss.
Dickerson, L. D., McComb City, Miss.
Dempster, R. T., Glendeame, Ky.
Driskell, A. J., Maroin, Miss.
Dupree, W. H., Baton Rouge, La.
De Lamor, W. C., Mountain Hill, Ga.
Duvall, H. C., Milwood, Ky.
Dibrell, J. A., Little Rock, Ark.
Davenport, Edw., Hampton, Ky.
Ducheln, C. F., Lecompte, La.
Davis, Oscar, Clatern, Texas.
Donald, J. D., Hattiesburg, Miss.
Dupagnier, E. M., New Orleans.
DeWitt, J. P., Canton, Ohio.
Dennis, C. D., Columbus, Ohio.
Dickes, Ph., Greenville, Ohio.
Dunaway, E. T., Murray, Ky.
Drake, J. W., Louisville, Ky.
Duff, G. C., Chicago.
Dannavant, H. C., Osceola, Ark.
Ducrocq, H. L., Lafourche Crossing, La.

Deynof, W., Council Bluffs, Iowa.
De Vilbiss, F., Spring Garden, Mo.
Dillon, J., Eureka, Kan.
Davis, N. S., Jr., Chicago.
Drayer, L. P., Fort Wayne, Ind.
Davis, Thos. D., Pittsburg, Pa.
Davis, C. E., Peoria, Ill.
Davis, Wm., St. Paul, Minn.
Dorris, T. B., Grapevine, Texas.
Davis, J. I., Shannon, Ohio.
Dempsey, J. G., New Orleans.
Denison, J. M., Blatchford, Ohio.
Dewey, Henry W., Tacoma, Wash.
Dabney, Thos. S., New Orleans.
Davis, Thos. W., Mayodan, N. C.
Dodin, Henry A., New York.
Doty, E. A., Oxford, Iowa.
Dillman, S. F., Ingraham, Ill.
Davis, Clark W., Cincinnati.
Dickson, H. J., Jamestown, Ark.
Drennan, C. T., Hot Springs, Ark.
Dice, S. D., Xenia, Ohio.
Ellenberger, J. W., Harrisburg, Pa.
Eggleston, E. L., Battle Creek, Mich.
Ervin, N. B., Gibsonburg, Ohio.
Eastman, H. A., Jamestown, N. Y.
Edwards, L., Edsmondsdale, Pa.
Elliott, John B., New Orleans.
Eichberg, Joseph, Cincinnati.
Elmer, H. W., Bridgeton, N. J.
Evans, J. G., New Hartford, Iowa.
Elkinton, G. H., Elevs, Wis.
Evans, Mark M., Le Grand, Iowa.
Ewing, A. C., Salt Lake City.
Elliott, Arthur R., Chicago.
Elliott, J. M., Hickory Corners, Mich.
Ellis, J. H., Kentwood, La.
Ernst, O. F., New Orleans.
English, W. T., Pittsburg, Pa.
Everett, J., Scrampton, La.
Flowers, E. W., McComb City, Miss.
Friedman, Jacob, St. Louis, Mo.
Furman, R. S., Shreveport, La.
Ferguson, Parker, New York.
Foreman, T. C., Foreman, La.
Ford, J. H., Vinton, La.
Foshay, P. M., Cleveland, Ohio.
Fleming, J. C., Burlington, Iowa.
Frederick, W., Elliott, Pa.
Frick, Wm., Kansas City, Mo.
Frey, Robert W., Trenton, Ky.
Fowler, A. E., New Orleans.
Farrell, John T., Providence, R. I.
Fyke, Edgar E., Centralia, Ill.
Foster, W. S., Pittsburg, Pa.
Foster, T. W., Tchula, Miss.
Fitzgerald, J. J., Eagle, Wis.
Fortier, St. Mark, New Orleans.
Foreman, J. M., Jonesburg, Mo.
Foshay, P. Max, Cleveland.
Futcher, T. B., Baltimore.
Felch, T. A., Ishpeming, Mich.
Fontaine, Bryce W., Barnes, La.
Foster, T. W., Tchula, Miss.
Griswold, J. B., Grand Rapids, Mich.
Garcelon, A., Lewiston, Me.
Gray, A. W., Milwaukee, Wis.
Graner, Edwin J., New Orleans.
Gaster, L., New Orleans.
Goodwin, E. J., St. Louis.
Green, Jas. H., N. Vernon, Ind.
Gardner, H. D., Scranton, Pa.
Good, Clarence A., Columbia, Mo.
Gordon, Jas., Junction City, O.
Gottschalk, F. B., Chicago.
Glidersleeve, J. R., Tazewell, Va.
George, J. F., Ft. Jennings, Ohio.
Gray, Henry H., Judd, Wis.
Gray, J. R., Elizabethtown, Ky.
Gulledge, R. H., Bellsher, La.
Gray, C. A., Hillsboro, Texas.
Gilbert, A. J., Hoopston, Ill.
Gavin, S. E., Fond du Lac, Wis.
Gahringer, J. M., Olds, Iowa.
Graber, C. L., Mt. Eaton, Ohio.
Grady, N. H., Monette, Ark.
Gates, D. L., Franklin, La.
Gaudin, Louis A., Covent, La.
Greenly, T. B., Meadow Lawn, Ky.
Gresham, W. A., Russellville, Ala.
Gayden, A., Norwood, La.
Greene, Jas. H., Quintown, Miss.
Gaines, V. P., Mobile, Ala.
Gaston, J. L., Montgomery, Ala.
Graves, H. N., Georgetown, Texas.
Gelbe, C. F., Girona, La.
Goldwaite, R., Montgomery, Ala.
Gillespie, W. A., New Orleans.
Gates, S. D., New Orleans.
Gazzo, John, Graceland, La.
Gottschalk, F. B., Chicago.
Grace, W. L., Plaquemine, La.
Griffen, O. A., Ann Arbor, Mich.
Hollister, R. O., Hammond, La.
Hayden, E. F., Shaw, Miss.
Hattery Seth, Massillon, Ohio.
Howard, W. L., Kosciusko, Miss.
Harris, W. T., Rich, Miss.
Hale, S. E., New Orleans.
Herrick, James B., Chicago.
Hanna, W. M., Henderson, Ky.
Hardin, J. A., Sweetwater, Tenn.
Hardesty, T. O., Kampsville, Ill.
Held, H. W., Vincennes, Ind.
Hart, J. B., New Orleans.
Hoover, P. N., Booneville, Ind.
Hofma, Edward, Grand Haven, Mich.
Hopson, Jos., St. Matthews, Ky.
Hanna, J. H., Covington, Tenn.
Hackler, G. M., Ennis, Texas.
Hough, C. P., Jefferson City, Mo.
Hand, S. P., Demopolis, Ala.
Hartman, W. F., Swoope, Va.
Howell, Geo., Tecumseh, Mich.
Hasencamp, O., Toledo, Ohio.
Hill, J. W., South Bend, Ind.
Hersberg, K. G., Carmel, Ind.
Holmes, W. W., Keokuk, Iowa.
Hawkins, R. G., Palmetto, La.
Harrell, T. M., Round Rock, Texas.
Hargrove, J. B., Natchitoches, La.
Horton, C. L., New Orleans.
Hunter, G. S., Bolton, Miss.
Hall, Henry P., Kenwick, Iowa.
Hendrixson, O. S., Columbus, O.
Hendrixson, Hugh, Columbus, O.
Hendrixson, O. P., Yellow Springs, Ohio.
Hubert, J. M., New Orleans.
Harris, S., Union Springs, Ala.
Heidingsfeld, M. L., Cincinnati.
Hermann, G. A., Hamilton, Ohio.
Hamrick, R. H., Pratt City, Ala.
Hill, Geo. A., Wynnette, Ala.
Hallberg, C. S. N., Chicago.
Holder, R. E., Columbus, Ind.
Howard, S. T., Durant, Miss.
Hahn, E., Leetonia, Ohio.
Hocker, R. T., Arlington, Ky.
Hall, Jos., Westfield, Ill.
Harman, G. G., Huntington, Pa.
Henry, E. L., Vacoupine, La.
Hawkins, M. P., Terre Haute, Ind.
Huckabay, G. N., Vivian, La.
Haynes, John U., Cohoes, N. Y.,
Howard, R. P., Durant, Miss.
Harris, Frederick G., Chicago.
Hobson, T. A., Parkersburg, Iowa.
Hart, M. J., LeRoy, Minn.
Heritage, C. S., Glassboro, N. J.
Halsey, L. M., Williamstown, N. J.
Harris, E. E., New York.
Hartwell, B. H., Ayer, Mass.
Horn, J. A., Chunk, Ga.
Happel, T. J., Trenton, Tenn.
Halberstath, A. H., Pottsville, Pa.
Hoffman, J. L., Ashland, Pa.
Hope, C. L., Oak Ridge, La.
Hilzrot, H. W., Keesport, Pa.
Hamner, O. O., Bienville, La.
Heath, T. A., Shiloh, Miss.
Hamilton, J. H., Union, S. C.
Hunter, J. W., Texas.
Hubbard, G. W., Nashville, Tenn.
Hobley, Thos., Amhustburg, Ont.
Hill, W. B., Milwaukee, Wis.
Harris, H. W., New Albany, Ind.
Hall, J. N., Dwyer.
Harrison, W. G., Talladega, Ala.
Hanks, James, Brashear, Mo.
Helm, J. A., Metropolis, Ill.
Harris, H. H., Hinton, Ga.
Ingals, E. Fletcher, Chicago.
Irion, C. H., Benton, La.
Irvin, E. J., Clinton, La.
Johnson, J. E., Lebanon Junction, Ky.
Jones, Hamilton P., New Orleans.
James, S. C., Kansas City, Mo.
Jenkins, Geo. F., Keokuk, Iowa.
Jenkins, W. F., Tecumseh, Mich.
Jenkins, J. F., Coleonor, Ala.
Jackson, W. Z., Berkley, Ky.
Joseph, H. S., Melville, La.
Jennings, M. Dwight, St. Louis.
Johnston, M. F., Richmond, Ind.
Jones, John T., New Orleans.
Jacobsohn, H. B., Memphis, Tenn.
Jones, P. H., Lutcher, La.
Jones, George W., Gunter, La.
Jones, F. R., Victoria, La.
Jones, Frank A., Memphis, Tenn.
Johnson, J. H., Brookhaven, Miss.
Jones, D. W., Hermanville, Miss.
Kahler, J. Frank, Canton, Ohio.
Kelly, Hugh, New Orleans.
Knowlton, J. W., Point Roch, Ala.
Kinyoun, J. J., Glenolden, Pa.
Keithley, J. W., Orfordville, Wis.
Knolle, W. H., New Orleans.
Kirker, G. A., Detroit.
Kahlo, G. D., Indianapolis, Ind.
King, Alfred C., New Orleans.
Kremers, Henry, Holland, Mich.
Kennedy, O. A., Louisville, Ky.
Krauss, Wm., Memphis, Tenn.
King, Chas. L., Pasadena, Cal.
Kimbell, John L., Casplano, La.
Kirkpatrick, D. F., Louisville, Texas.
Kimsey, F. M., Ducktown, Tenn.
Keyser, P. H., Boulder, Colo.
Kerr, M. M., Laurium, Mich.
Kleinhause, F. A., Milwaukee, Wis.
Keltz, Gustave, New Orleans.
Karcher, W. L., Freeport, Ill.
Kerr, M. M., Laurium, Mich.
Kimball, H. N., Minneapolis, Minn.
Kilmartin, Thos. J., Waterbury, Conn.
Kelly Joseph V., Philadelphia.
Kembel, C. L., Bloomfield, Iowa.
Kemper, G. W. H., Muncie, Ind.
Knapp, A. A., Brimfield, Ill.
Kornemann, H. A., Newark, N. J.
Lawrence, W. C., Yellow Pine, Ala.
Lillile, C. W., East St. Louis, Ill.
Lankford, J. S., San Antonio, Texas.
Lindsay, R. W., Little Rock, Ark.
Longino, Luther, Minden, La.
Lourin, Leon, Brooklyn.
Long, W. P., Weatherly, Pa.
Lebeuf, L. S., New Orleans.
Lester, E., Seneca Falls, N. Y.
Lewis, Geo. W., New Orleans.
LaGarde, L. A., U. S. A., Washington, D. C.
Lehan, J. W., Dunlap, Iowa.
Lambert, Alexander, New York.
Landry, A. H., Paincourtville, La.
Lowry, A. Clark, Ironton, Ohio.
Latham, H. W., Latham, Mo.
Lacey, R., Bessemer, Ala.
Lowry, J. W., Findlay, Ohio.
Littell, B. A., Opelousas, La.
Long, J. M., St. Louis.
Laurens, J., New Orleans.
Luehrs, Edwin, Chicago, Ill.
Lawson, W. T., Danville, Ind.
Lucas, J. W., Morehead, Miss.
Lichty, M. J., Cleveland, Ohio.
Lichty, J. A., Pittsburg, Pa.
Lehmann, V., Hahnville, La.
Lewis, U. S., E. Dubuque, Ill.
Langdtt, W. J., Allegheny, Pa.
Lange, J. C., Pittsburg, Pa.
Leake, N., Collierville, Tenn.
Lutterloh, C. M., Jonesboro, Ark.
LaRue, F. G., Smithland, Ky.
Lee, Jas. R., Columbus, Ky.
Lattimore, A., Savannah, Ga.
LaForce, W., Dortunwa, Iowa.
LeBaron, Chas., Jackson, Miss.
Lumsden, L. L., Angel Island, Cal.
Lynch, W. M., New Orleans.
Lowe, Edgar, New Orleans.
Ledoux, Alexander, New Orleans.
Meek, Ed, Little Rock, Ark.
Meyer, A. J., Thibodeaux, La.
Moyer, Harold M., Chicago.
Mouton, Julius, Rayne, La.
Mioton, S. F., New Orleans.
Moore, J. T., Galveston, Texas.
Murray, C. M., Ripley, Wis.
Meyer, L. E., Patterson, La.
Morton, W. H., Swaneah, Tenn.
Montz, Anthony J., New Orleans.
Miller, J. H., Princeton, Ky.
Mershaw, C. L., Fairhope, Ala.
Morgan, G. L., Turtle Bayou, Texas.
Milnamow, J. T., Chicago.
Mims, David D., Crowley, La.
Moon, C. C., Ypsilanti, Mich.
Milnor, M. T., Warrensville, Pa.
Meisenbach, A. H., St. Louis.
Marquis, Thos. B., Lisbon, Ohio.
Mobilin, W. E., Yazoo City, Miss.
Murphy, T. C., Enterprise, Miss.
Musser, C. S., Aronsburg, Pa.
Mundhenk, W. S., Brookville, O.
Morbin, Robt. M., Rome, Ga.
Maxwell, A., Indianapolis, Ind.
Moore, R. C., Omaha.
Magruder, M. J., New Orleans.
May, A., Crowtherville, Ind.
Milliken, Mark, Hamilton, Ohio.
Moore, John S., New Hope, Conn.
Miller, B. E., Daisy, Ga.
Miller, J. M., Montrose, Mo.
Miller, J. S., York, Pa.
Morrow, E. O., Canton, Ohio.
Moore, W., St. Louis.
Miller, J. S., Mt. Pleasant, Ohio.
Mills, D. C., New Lebanon, Ohio.
Milliken, T. N., Waynesburg, Pa.
Mellen, W. M. E., Chicopee, Mass.
Marlette, C. E., Haynesville, Ala.
Mainegra, R. J., St. Louis.
Morgan, Gordon, Woodside, La.
Marchamm, O. M., Grand Sabine, Texas.
Mack, Milton, Chicago.
Marechal, E. L., Mobile, Ala.
Moyer, S. R., Monroe, Wis.
Meade, R. A., Chicago.
Miller, Joseph S., Chicago.
Mohr, Chas. A., Mobile, Ala.
Morrow, W. F., Kansas City, Mo.
Mayturn, W. J., Alexandria, S. D.
Mills, O. P. S., Grant City, Mo.
Moriarty, J. L., Waterbury, Conn.
Marmion, R. A., Washington, D. C.
Maylle, A. G., New Orleans.
Mason, J. H., Jr., Baltimore.
Marshall, G. W., Milford, Del.
Morrison, A. M., Goshen, Ky.
Musser, John H. Philadelphia.
Mason, C. F., Fort Sam Houston, Texas.
Mitchell, J. H., Mt. Vernon, Ill.
Mayer, L. H., Johnstown, Pa.
Malone, Joseph W., Brooklyn.
Merril, J. P., Atlantic City, N. J.
Martin, R. W., Lynchburg, Va.
Martin, R. S., Stuart, Va.
Morse, F. D., Lawrence, Kan.
McKinney, D. B., George, Iowa.
McOscar, E. J., Fort Wayne, Ind.
McElroy, J. B., Stovall, Miss.
McCrae, Thomas, Baltimore.
McCuskey, G. W., Fort Wayne, Ind.
McCracken, R. C., E. St. Louis, Ill.
McCutcheon, J. B., New Orleans.
McClanahan, V. C., Viola, Ill.
McNamara, J. G., St. Paul, Minn.
McConnell, J. F., Las Crucus, N. M.
McDonnell, W. B., New Augusta, Ind.
McGlenn, J. A., Mt. Pleasant, O.
McDuffie, J. H., Columbus, Ga.
MacCoy, G. T., Columbus, Ind.
McCall, O. D., Paul, Mo.
McClennan, R. C., Syracuse, N. Y.
McAllister, E. B., Franklin, Ind.
McBride, R. E., Houma, La.
McCrlation, L. B., Paris, Texas.
McGavren, S. B., Cadiz, Ohio.
McCown, O. S., Memphis, Tenn.
McGehee, E. L., New Orleans.
McCurry, S. J., Anniston, Ala.
McVea, Chas., Baton Rouge, La.
McLean, J. L., Birdford, Ga.
McLean, S. H., Jackson, Miss.
McWharter, H. P., Collinsville, Ala.
McCabe, W. F., Beloit, Wis.
McKinney, J. W., Bluffton, Ind.
McDonald, W. J., Charleston, Mass.
McClain, W. A., Sweetwater, Tenn.
McKnight, W. B., Mansfield, Texas.
McCannon, Vernon, Arkansas City, Ark.
Noblin, W. E., Yazoo City, Miss.
Norton, M. M., Sunnyside, Ark.
Nowlin, Bethel, Jonah, Texas.
Noer, Julius, Stoughton, Wis.
Nolte, Arthur, New Orleans.
Nadeau, H., Los Angeles, Cal.
Norton, F. D., Columbus, Ind.
Newbecker, M. M., New Orleans.
Nolte, L. G., New Orleans.
Nelsen, A., New Orleans.
Noyes, J. C., Oshkosh, Wis.
Newhall, L. T., Brookfield, Mass.
Neilson, W. H., Milwaukee, Wis.
Nead, Daniel W., Philadelphia.
Neville, Wm., McComb, Miss.
Oechsner, Herman, New Orleans.
Osttiker, Jas., Platteville, Wis.
Obum, Adam B., Alfonna, Pa.
Olney, Stephen, Sioux Falls, S. D.
O'Donnell, R. W., New Orleans.
Parsons, H. J., Mansfield, La.
Pierson, Clarence, Alexandria, La.
Plunkett, J. H., McComb City, Miss.
Patton, G. F., New Orleans.
Pearson, J. E., Sylacaug, Ala.
Pray, Alfred A., New Orleans.
Peters, W. L., Chickosh, I. T.
Palmer, J. G., Calhoun, Ala.
Powell, J. L., Friendship, Tenn.
Powes, E. O., Orangeville, La.
Pollock, W. F., Pittsburg, Pa.
Pease, C. A., Burlington, Vt.
Ponlette, S. L., Hammond, La.
Pythian, John L., Newport, Ky.
Portman, O. E., Canton, Ohio.
Potter, Theo., Indianapolis, Ind.
Pigott, J. F., Covington, La.
Palne, R. B., Mandeville, La.
Pomerene, H. P., Canton, Ohio.
Putnam, B. H., North East, Pa.
Peck, J. M., Arlington, Ky.
Pierson, Allen, Spencer, Ind.
Prichard, C. C., Harrisonburg, La.

Pirosh, B., Chicago.
Powers, J. C., Hampton, Iowa.
Patterson, O. M., Bastrop, La.
Pearson, J. J., Pontiac, Ill.
Pierson, M. M., Louisiana, Mo.
Pitinger, Chas. R., Newark, N. J.
Person, A. G., Synder, Texas.
Preston, J. W., Keystone, W. Va.
Priestley, J. T., Des Moines, Iowa.
Pigman, G., Liberty, Ind.
Putney, Jas., Charleston, W. Va.
Price, Marshall L., Baltimore.
Price, J. L., Sherman, Ky.
Plessner, Louis, Bay City, Mich.
Paine, H. M., Atlanta, Ga.
Potter, L. A., Superior, Wis.
Powers, L. G., Richmond, Ind.
Quirk, W. A., Evergreen, La.
Rogers, W. L., Houston, Texas.
Raymond, F. S., Memphis, Tenn.
Runyon, F. J., Clarksville, Tenn.
Robertson, W. W., McComb City, Miss.
Robin, W. H., New Orleans.
Ragan, G. T., Neoga, Ill.
Rogers, J. T., Statesboro, Ga.
Rabe, Wm. L., Draugleet, Ill.
Rogers, F. E., Littleton, Colo.
Robinson, T. F., Bessemer, Ala.
Rigga, J. E., Milwaukee, Wis.
Rice, J. H., Quincy, Ill.
Rodman, W. E., Hodgenville, Ky.
Reed, Flora A., Fond du Lac, Wis.
Reed, R. C. S., Stockton, Ohio.
Robert, John A., Manitowoc, Wis.
Reed, Y. J., Massena, Ohio.
Rawlins, J. S., Dancyville, Tenn.
Rudolph, Theo. R., New Orleans.
Robinson, J. M., Guthrie, Ky.
Roberts, D. J., Nashville, Tenn.
Robertson, A. R., Pass Christian, Miss.
Ross, S. P., Savannah, I. T.
Rous, W. D., Patterson, La.
Rowe, Moses, Ill.
Richard, Jas. I., New Orleans.
Rust, E. M., Merkel, Texas.
Riche, H. Guy, Devall, La.
Rowse, Robt. Q., Wakefield, Neb.
Robin, William H., New Orleans.
Richards, W. T., New Orleans.
Rivord, G. J., Assumption, Ill.
Rowe, J., Abingdon, Ill.
Ray, Centreville, Miss.
Roberts, E. G., Fair Haven, Vt.
Ramsey, R. W., Chambersburg, Pa.
Rochester, Delancy, Buffalo, N. Y.
Rogers, A. G., Park City, Ind.
Reed, Jas. H., Battle Creek, Mich.
Ruffin, Sterling, Washington, D. C.
Sandifer, F. M., Thornton, Miss.
Scott, Jr., J. F., Winona, Miss.
Smith, V. C., Henderson, La.
Sauter, Chas. F., New Orleans.
Schmittle, Joseph, New Orleans.
Shaw, Guy A., Lonoconville, La.
Sheely, C. A., Gulfport, Miss.
Stuart, Jos. R., Houston, Texas.
Smith, C. M., Dixon, Ky.
Smith, P. B., Houston, Texas.
Surghnor, Graham, Monroe, La.
Stanford, F. P., Independence, La.
Simmons, V., Summit, Miss.
Stevenson, W. L., New Orleans.
Singletary, T. P., Baton Rouge, La.
Simmons, H. M., Baltimore.
Stark, Thos., Thibodeaux, La.
Sisbaugh, W. H., S. Omaha, Neb.
Singletary, Jr., S. L., Deasonville, La.
Stephens, J. S., Natchitoches, La.
Smith, B. W., Franklin, La.
Sewall, J. A., Rockwood, Tenn.
Sheely, Cates, Gulf Port, Miss.
Shell, W. T., Corsicana, Texas.
Simpson, Elmer E., Chicago.
Smith, A. J., Galveston, Texas.
Sharman, J. R., Meridian, Miss.
Sippy, B. W., Chicago.
Sanders, J. F., Friendship, Tenn.
Sitman, C. M., Greenburg, La.
Szabary, L., New Orleans.
Stuart, E. G., Pittsburg, Pa.
Strouss, U. S. Beaver, Pa.
Seay, R. W., New Orleans.
Staples, Geo. A., Dubuque, Iowa.
Smith, Larkin, Nashville, Tenn.
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McNeil, E. K., Jackson, Tenn.
Menage, H. E., New Orleans.
Minor, J. C., Hot Springs, Ark.
O'Keeffe, J. F., Mt. Clemens, Mich.
Rousell, J. Numa, New Orleans.
Schamberg, J. F., Philadelphia.
Swarts, G. T., Providence, R. I.
Vanderhorck, M. P., Minneapolis.
Varney, H. R., Detroit.
Weiss, Ludwig, New York.
Wolff, H. D., New Orleans.
Zeisler, Joseph, Chicago.

Section on Laryngology and Otology.

Baldwin, Kate W., St. Louis.
Baker, Chas. H., Bay City, Mich.
Barnhill, John F., Indianapolis.
Behrens, B. M., Minneapolis.
Bonner, H., Bowling Green, Ky.
Boyd, Frank D., Columbus, Tenn.
Brons, J. D., Chicago.
Brown, George, Chicago.
Carson, James O., Fredericksburg, Ohio.
Cobb, C. M., Boston.
Cott, Geo. F., Buffalo, N. Y.
Dean, L. W., Iowa City, Iowa.
DeRoaldes, A. D., New Orleans.
De Vilbliss, Allan, Toledo, O.
Dowling, Oscar, New Orleans.
Dupuy, Homer, New Orleans.
Edwards, J. N., Syracuse, N. Y.
Freer, Otto, Chicago, Ill.
Gaudet, A. P., New Orleans.
Haubrich, Albert K., Baltimore.
Hammond, P., Boston.
Harrell, R. F., New Orleans.
Hill, J. Frank, Memphis, Tenn.
Joachim, O., New Orleans.
Judy, C. S., Miamisburg, Ohio.
King, Gordon, New Orleans.
Kuyk, D. A., Richmond, Va.
Landfield, C. J., New Orleans.
Lanington, H. J., Richmond, Va.
Lock, H. W., Lynn, Mass.
McKinney, Richmond, New York.
Marlsbarg, Geo. L., Toledo, Ohio.
Martindale, John Howard, Los Angeles, Cal.
Miles, R. E., Montgomery, Ala.
Moxley, N. R., Ft. Worth, Tex.
Murphy, W. E., Cincinnati.
O'Kelley, J. P., New Orleans.
Pake, S. Guy, W. Superior, Wis.
Page, Lafayette, Indianapolis.
Pennell, W. W., Fredericktown, O.
Pierce, N. H., Chicago.
Richards, Geo. L., Fall River, Mass.
Robinson, C. M., Dutch Mills, Ark.
Schambaugh, G. E., Newell, Iowa.
Scheppegrell, Wm., New Orleans.
Shurly, E. R., Detroit, Mich.
Snow, Sargent, Syracuse, N. Y.
Solly, S. E., Colorado Springs, Colo.
Stapler, Maury M., Macon, Ga.
Surghnor, G., Monroe, La.
Thigpen, C. A., Montgomery, Ala.
Woolen, Green V., Indianapolis.

Section on Materia Medica, Pharmacy and Therapeutics.

Beates, H. P., Philadelphia.
Butler, Geo. F., Alma, Mich.
Chamberlain, C. S., Norwood, Ohio.
Cohen, S. S., Philadelphia.
Eliot, G., New Haven, Conn.
Gwynn, John C., Century, Fla.
Holland, J. W., Philadelphia.
Jones, Philip M., San Francisco.
Larned, E. R., Pittsburg.
Leavell, Hugh, Louisville, Ky.
Moody, H. A., Mobile, Ala.
Murray, R. D., Key West, Fla.
News, G. A., Montgomery, Ala.
Osborne, O. T., New Haven, Conn.
Robinson, Wm. J., New York.
Sajous, C. Ed. M., Philadelphia.
Skinner, C. E., Hiaven, Conn.
Slack, H. R., La Grange, Ga.
Storck, J. A., New Orleans.
Tompkins, W. W., Charleston, W. Va.

Section on Pathology and Physiology.

Anderson, E. C., Chattanooga, Tenn.
Bell, Guido, Indianapolis.
Brown, Pl. W., Fish Hook, Ill.
Burring, W. L., Iowa City, Iowa.
Carter, W. S., Galveston, Tex.
Couret, Maurice, New Orleans.
Christian, Henry A., Boston.
Evans, W. A., Chicago.
Evans, N., Battle Creek, Mich.
Foss, John W., Phœnix, Ariz.
Gradwohl, R. B. H., St. Louis.
Hall, Winfield F., Chicago.
Hektoen, L., Chicago.
Houghton, E. M., Detroit.
LeCount, E. R., Chicago.
Leroy, Louis, Nashville, Tenn.
Lichty, Daniel, Rockford, Ill.
McFarland, Jos., Philadelphia.
Mandeville, W. R., New Orleans.
Metz, A. L., New Orleans.
Novy, F. E., Ann Arbor, Mich.
Ohlmacher, A. P., Gallipolis, Ohio.
Otis, F. J., Battle Creek, Mich.
Pinault, N. J., Pass Christian, Miss.
Pfaff, O. G., Indianapolis.
Pothier, O. L., New Orleans.
Smith, Claude A., Atlanta, Ga.
Vaughan, V. C., Ann Arbor, Mich.
Ward, Henry B., Lincoln, Neb.
Welsh, W. H., Baltimore.
Whitehead, R. H., Chapel Hill, N. C.
Wynn, Frank B., Indianapolis.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Pruritus.

Robin and Dalche, according to "Amer. Med.," recommend the following outline of treatment of pruritus occurring in women at the time of menopause or as the result of nervous disorders arising from rheumatism, gout, diabetes, Bright's disease or gastric disturbances: Locally prolonged applications of a 1 to 1,000 bichlorid solution, or 10 per cent. solution of chloral hydrate or a 5 to 10 per cent. cocain solution. The following powder may be used locally:

℞ Pulv. orthoform
Pulv. diiodoform
Pulv. talci, ää.....3ii 8

M. Ft. pulvis. Sig.: Apply locally.

The statement is made that the anesthesia from orthoform lasts longer than that from cocain. They mention an application of ichthyol in 10 per cent. aqueous solution or in the form of an ointment of 15 per cent. strength; a 5 per cent ointment of methyl salicylate is also of service. The following ointment may be used:

℞ Menthol .....gr. 3/4 05
Guaiacol .....gr. v-xv 30-1.
Zinci oxidi 3iiss 10
Vaselini 3i 30

M. Ft. unguentum. Sig.: Apply locally. The following is recommended for internal administration.

℞ Erythrol .....gr. ss-iss 03-.09
Calcii fluorid .....gr. ss-iss 03-.09
Calcined magnes.....gr. ii 12

M. Ft. chartula No. i. Sig.: One such after each meal. The foregoing is recommended particularly in fermentation from butyric acid. If lactic acid fermentation is present the following should be substituted:

℞ Ammon. fluoridi .....gr. iss-xv 09-1.
Aquæ 3x 300

M. Sig.: One dessertspoonful after breakfast and supper.

H. Leo, in an abstract in "Indian Med. Record," is inclined to the belief that pruritus generalized over the body may be due to an over-alkaline condition of the blood and recommends the following treatment: Hydrochloric acid (50 per cent.) in ten-drop doses every two hours. At the end of a few days the acid may be changed to a 1.5 per cent. solution of sulphuric acid, giving a teaspoonful every two hours. The urine in most of the cases in which this was tried was strongly alkaline in reaction previous to commencing the treatment.

Tuttle recommends the following combinations in the treatment of pruritus ani:

℞ Benzoini 3ss 2
Hydrarg. ammon. .....gr. xii 75
Lanolini q. s. ad.....3ss 15

M. Sig.: Apply night and morning after thoroughly cleansing the parts; or:

℞ Ext. hamamelidis flu. 3i 30
Ext. ergotæ flu. 3iss 45
Ext. hydrastis flu. 3i 4
Tinct. benzoini co. 3iss 6
Olei lini cum acid. carbol (5 per cent.) ..3i 30

M. Sig.: Shake and apply locally night and morning.

Lactic Acid.

Lactic acid is of great service as an intestinal disinfectant, according to Hayem in the "Indian Med. Rec." Especially is it of service in the green diarrhea of children, combined as follows:

℞.	Acidi lactici	℥ss	2
	Syr. ideai (raspberry)	℥v	20
	Aquæ	℥iii	90

M. Sig.: One teaspoonful two hours.

It may be given in the form of a lemonade as follows:

℞.	Acidi lactici	℥iiss	10
	Syrupi	℥vi	180
	Aquæ	℥xxiv	720

M. Sig.: One-half a wineglassful several times daily.

It is also recommended in the treatment of infantile prurigo, in eczema, and urticaria, given in two to ten drop doses twice a day before meals. It is of service in typhoid fever and cholera and in chronic dysentery, in which latter case it may be given in fifteen-drop doses every two hours, gradually diminishing the number of doses until three are given daily. It must be well diluted in a mucilaginous mixture.

Phosphorus in Phthisis.

F. S. Plicque, in "N. Y. Med. Jour.," states, in cases of fever in tuberculous subjects accompanied by gastric disturbances, that the following is of service as a beverage:

℞.	Acidi phosphorici dil.	m. xxx	2
	Aquæ	℥xxx	900
	Syrupi	℥iii	90

M. Sig.: One or two quarts of this combination may be taken daily.

The following combination is recommended by Dujardin-Beaumetz as an agreeable preparation and taken by children readily:

℞.	Sodii phos.	℥iss	6
	Potass. phos.	gr. xlv	3
	Syr. aurantii cort.	℥ii	60
	Vini Banyuls	℥vii	210

M. Sig.: A wineglassful after each meal.

Creosote may be given temporarily, but patients grow thin under its use as a rule. Brissonet recommends the following emulsion:

℞.	Creosoti phos. or tannophos.	℥vi	24
	Syr. aurantii flor.	℥ii	60
	Mucil. acaciæ	℥iiss	10
	Aq. aurantii q. s. ad	℥iv	120

M. Sig.: One teaspoonful three times a day after meals; or:

℞.	Creosoti tannophos.	℥iiss	10
	Olei morrhuæ	℥viii	240

M. Sig.: One tablespoonful three times a day. These preparations, according to the author, are contraindicated in hemoptysis.

The phosphite of soda should never be given by the mouth because of its irritant action. It has a good effect on the fever and infection, according to the writer, and can be given in the form of an enema as follows:

℞.	Tinct. opii (Sydenham)	m. x	65
	Creosoti phosphiti	m. xv-xxx	1-2
	Yolk egg	No. i	
	Olei olivæ	℥i	30
	Lactis	℥v	150

M. Sig.: At one dose introduced by the bowel.

Diarrhea.

R. Le Clerg, in "Rev. Med. de Normandie," recommends the following in the treatment of persistent diarrhea of endemic origin:

℞.	Naphthalin	gr. iiss	15
	Pulv. saccheri		
	Quin. sulph., āā	gr. iss	09
	Morph. hydrochlor.	gr. 1/15	004
	Essentiæ bergamot., q. s.		

M. Ft. capsula No. i. Sig.: One such capsule three times a day.

The treatment must be accompanied by a proper regulation of the diet.

Incompetent Heart.

R. C. Curtin, in "Internat. Med. Mag.," recommends the following combination in the treatment of anasarca and general dropsy due to a right heart incompetency:

℞.	Sodii benzoatis	gr. ii	12
	Tinct. digitalis	m. iii	20
	Spts. etheris nitrosi	m. xx	1 30
	Diuretin	gr. iii	20
	Spts. chloroformi	m. xv	1

M. Sig.: To be taken at one dose and repeated every two hours.

To improve the hepatic circulation in such conditions, calomel serves the purpose best; however, blue mass, podophyllin, sodium phosphate or other cholagogues may be substituted for it.

Hysteria and Neurasthenia.

The following combination, containing the glycerophosphates, is recommended by Thompson, in "Med Rev. of Reviews," in the treatment of hysteria and neurasthenia:

℞.	Sodii glycerophosphatis	℥ss	15
	Calcii glycerophosphatis	℥ii	8
	Acidi phosphorici dil.	℥vi	24
	Aquæ cinnamomi q. s. ad	℥iv	120

M. Sig.: One teaspoonful three times a day after meals.

Substitutes for Quinin.

According to Solis-Cohen, in "Amer. Medicine," euquinin may be used as a substitute for quinin. The advantages claimed for it are that it is practically tasteless, it causes no tinnitus aurium, less prone to disturb the digestion and is not so irritating to the kidneys. The following formula is recommended:

℞.	Euquinin	℥i	4
	Ferri lactatis	℥ii	8
	Sol. acidi arsenosi	℥iss	6
	Tinct. lavendulæ co.	℥iv	15
	Elix. curacoa q. s. ad	℥iv	120

M. Sig.: One teaspoonful four times a day.

Administering Quinin to Infants.

According to an abstract in "Gaz. des Hopitaux," Borde states that quinin can be made so palatable that children will take it, by preparing a mixture as follows: Mix gr. 15 (1.00) of quinin sulphate with drams 2 (8.00) of olive oil. According to the writer twenty-seven minims, as measured in a graduate, will contain one grain (.06) of quinin. This oily mixture is then floated on a tablespoonful of cold milk; this can be easily swallowed by a child without detecting the taste of the quinin. The oily mixture can be given alone, as it rolls down the tongue and the taste is scarcely detected by the infant.

Removal of Corns.

The following combinations are of service in the removal of corns, according to the "Pract. Drug.":

℞.	Acidi salicylici	℥i	4
	Acidi lactici	℥i	4
	Ceroti simplicis	℥i	30

M. Sig.: Apply locally night and morning; or:

℞.	Acidi salicylici	℥i	4
	Resinæ	℥ii	8
	Adipis	℥ss	15
	Olei amyg. dulcis	℥ii	8

M. Ft. unguentum. Sig.: Apply locally night and morning.

Heat Stroke.

Andrew Duncan, in "Tropical Medicine," states, in the preventive treatment of heat stroke, that the head and spinal cord must be properly protected, the dress must be loose around the neck, chest and abdomen. As curative measures, the patient should be moved into the shade, if possible, his clothes loosened and cold water poured on the head and neck, and frequently repeated. Ammonia should also be applied to the nostrils, a turpentine enema administered and a large mustard poultice applied to the chest. The author states that ice should not be applied to the head when the pulse is feeble and the skin cold. Chloroform is indicated if convulsions occur, administering only a few whiffs. If pains subsequently persist in the head, blisters should be applied to the nape of the neck and quinin given internally.

He states that a solution of trinitrin (1 to 1,000) is of service, giving 20 drops of this solution every quarter of an hour until the symptoms have disappeared. Venesection is not advocated on account of the great mortality following its employment. Anyone who has suffered from heat stroke should not visit the tropics.

Medicolegal.

Duty as to Providing Medical Attendance for Child.—While granting the existence of a legal obligation on the part of a parent, or one standing in the place of a parent, to provide medical attendance for a minor child, it seems to the second appellate division of the Supreme Court of New York that the obligation does not necessarily import in every case the calling in of a physician. In the case before it, of People vs. Pierson, the intention, it thinks, was to charge that the crime consisted not merely of a failure to furnish medical attendance generally, but a failure to furnish medical attendance by a qualified doctor. If this view of the indictment was correct, the court holds that it failed to charge a criminal offense, in the absence of an allegation or statement of facts showing that the case [alleged to be one of catarrhal pneumonia] was one in which a regularly licensed and practicing physician and surgeon ought to have been called. The question as to whether such a state of facts existed must be determined by the standard of conduct of an ordinarily prudent person. In other words, it is thought, the medical attendance which the law requires the parent to provide for his child depends on the circumstances of the case; that in some instances ordinary household nursing by the members of the family may be sufficient; that, if the illness is of a graver character, it may be enough to call in the services of a trained nurse, and, when danger is apparent, then the obligation, under the law, goes so far as to require that a physician be summoned. But the guide to proper conduct must be ascertained by asking, "What would an ordinarily prudent person, solicitous for the welfare of his child, and anxious to promote the recovery of the patient, do under the given circumstances of the particular case?" The accused, the court says, was not tried on any such view of the law as this. The trial judge told the jury that before they could convict him they must find "that he knew that the child was ill, and deliberately and intentionally failed or refused to call in a physician, or to give to it such medicines as the science of the age would say would be proper that a child in its condition should have." It was true that this portion of the charge presented alternatives, and imported that the accused might comply with his obligations under the law by giving proper medicines, even if he did not call in a doctor; but the court thinks it was going too far to imply, as did the language quoted, that he would necessarily fail to discharge his duty if the medicines he gave were not such as the science of the age would say were proper. As already intimated, it thinks the standard which should be applied was the conduct of an ordinarily prudent person. Nothing is said in the prevailing opinion about faith healing or anything of that kind, and no intimation is given that it was known to the court that the accused believed in it or for that reason did not summon a physician. Presiding Justice Goodrich, however, in a lengthy dissenting opinion discusses what he terms the underlying question of whether or not a profession of religious belief in Divine or faith healing justified the accused in his refusal to obey the statutory law of the state. He maintains that the cases which he cites establish the principle that a person who wilfully and knowingly refuses to furnish necessary medical attendance to his minor child, when he knows it to be dangerously ill, disobeys Section 288 of the New York Penal Code (which provides that a person who wilfully omits to perform a duty by law imposed on him to furnish medical attendance to a minor is guilty of a misdemeanor), without regard to the question whether or not he acted in obedience to his religious convictions, and that the statute is not offensive to the article of the constitution as to liberty of conscience.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal.

May 9.

1 *Presidential Address, American Medical Association: Medical Education in the United States. Frank Billings.
2 *Oration in Medicine, American Medical Association: Social Conditions in America in Their Relation to Medical Progress and Disease. J. M. Anders.
3 *Oration in Surgery, American Medical Association: Cancer and Immunity. (To be continued.) A. F. Jonas.
4 *Report of a Case of Pulsating Empyema Necessitatis, with Three Strongly Pulsating Tumors. Frederick P. Henry.
5 A Case of Epidural Abscess of Otitic Origin—Operation—Recovery. J. Guttman.
6 *Astigmatism Cured by Corneal Trauma. Percy Fridenberg.

1, 2, 3.—These articles appeared in THE JOURNAL, May 9.

4. **Pulsating Empyema.**—Besides the case here reported, Henry gives a general discussion of the subject and brief abstracts of a number of those reported in the literature. From a careful study of many of the reported cases he concludes that the most important factors in the production of pulsating empyema are: Left-sided and large effusion; 2, relaxation of the thoracic wall from paresis of the intercostal muscles, and 3, a somewhat forcible heart beat. The presence of air in the pleural sac under great tension and the adhesion of the compressed lung to the pericardium are co-operating, but not essential causes.

6. **Astigmatism.**—Fridenberg first refers to Bull's case reported in the "New York Medical Journal" and abstracted in THE JOURNAL of February 29, 1903, p. 541, and remarks that the tendency for the unexpected to happen is illustrated in his meeting, shortly after reading that account, with a case in which corneal astigmatism of low degree was neutralized by direct injury. He here reports the case. The mechanism was simple flattening of the corneal curve from the scar contraction. There was no actual section, but only a superficial, though extensive, incision of the cornea. Astigmatism was slight, and by peculiar chance just enough to neutralize the pre-existing inequality of curvature. He remarks that "the prophetic eye may see in the dim future the operation of graduated superficial keratotomy for astigmatism."

Philadelphia Medical Journal.

May 9.

7 *Presidential Address, American Medical Association. Frank Billings.
8 Report of a Case of Suturing the Omentum to the Abdominal Wall (Talma) for the Relief of Ascites Due to Cirrhosis of the Liver, Twenty-one Months After Operation. Thomas R. Neilson.
9 A Case of Cirrhosis of the Liver with Ascites; Operation Eight Weeks After First Occurrence of Ascites, Subsidence of Ascites Six Months After the Operation, and Non-Recurrence in Two Years. W. W. Keen and H. M. Flaher.
10 *Novelties in the Physical Treatment of Skin Diseases. L. Freund.
11 *Importance of Repair of Small Cervical Lacerations. James H. Bartenshaw.
12 *Toxic Amblyopia, from Wood Alcohol. J. W. Sherer.
13 *A Note on Traumatic Syringomyelia, with Report of a Case Presenting Sensory Disturbances Affecting One Limb, and Trophic Changes of the Subcutaneous Tissue of the Entire Limb. Alfred Gordon.

7.—This article appeared in THE JOURNAL, May 9.

10. **The X-Ray.**—Freund describes two new instruments for testing the penetrability and length of spark of the *x*-ray, the first consisting of a transparent scale of layers of aluminum and the second a scale "spintometer" arranged parallel to the tube and measuring the spark length. Still another apparatus is the Holzknecht chromoradiometer, based on the principle of the absorption of the *x*-rays by fluorescent salts, which produces reflections of a certain tint, which are compared with a standard color scale. (Illustrated in THE JOURNAL of Oct. 25, 1902, p. 1079.) Freund considers that the correct estimation of dosage and intensity and quality of the rays is not such an advantage in the treatment as might appear. We should study the individual reaction as well as action in these cases. There is a possible difference in individuals and the way they react to the rays. He has experimented with the

action of the ultra-violet rays and their bactericidal action and finds very little effect, but his investigations have shown that the heat rays exert a favorable influence in some skin affections.

11. **Cervical Lacerations.**—Burtenshaw calls attention to possible reflex effects of minute cervical lacerations which may be overlooked, and reports cases where they were hardly observable and yet operation caused almost immediate relief of symptoms. It does not follow that every tear of the cervix requires a surgical operation, but he thinks due significance is not given to the smaller ones, which in many cases are the unrecognized causes of not only local morbid conditions but of systemic ones as well.

12. **Wood Alcohol Blindness.**—Sherer reports a case and discusses the condition, pointing out the dangers of wood alcohol, and concludes that there is no remedy for this condition. He adds, in conclusion, a notice of Marlowe's researches on the pathology of the disturbance, which appears to be a primary destruction of the nerve elements.

13. **Traumatic Syringomyelia.**—In the case here reported by Gordon the symptoms were localized and unilateral, though in other respects most typical of syringomyelia.

Boston Medical and Surgical Journal.

May 7.

14 *President's Address, American Medical Association. Frank Billings.
15 *Oration in Surgery, American Medical Association: Cancer and Immunity. A. F. Jonas.
16 *Brachial Paralysis, Post-Narcotic. F. J. Cotton and S. W. Allen.
17 Pyronin-methyl Green: A Brilliant Double Stain for Cells and Bacteria. William F. Whitney.
18 X-Light in Anthropometrical Signalment. William Rollins.

14, 15.—These articles appeared in THE JOURNAL, May 9.

16. **Post-Narcotic Brachial Paralysis.**—After reporting four cases and analyzing the symptoms, Cotton and Allen emphasize particularly the following points:

Paralysis of part or all the muscles supplied by the brachial plexus with some sensory involvement is not very uncommon after narcosis, though rarely mentioned. Its cause is not toxic but mechanical. It occurs only when the arms are long held above the head or lie in abduction—never if they lie flexed on the chest. The mechanism is a pressure on the nerve roots, probably between the clavicle and the muscles over the transverse processes of the cervical vertebræ, or from stretching over the head of the humerus in abduction.

The trouble is essentially functional without known lesions. The lost function returns in part very early. Total recovery is often long delayed, but apparently is to be counted on. The possibility of the accident should be impressed on students, on house officers and on all of us. In view of this risk the arms of a patient under ether should always, where possible, be flexed with the hands on the chest. If other positions are unavoidable they should not be continued long without change.

Medical News, New York.

May 9.

19 *Oration in Surgery, American Medical Association: Cancer and Immunity. A. F. Jonas.
20 *The Resemblances of Malignant Endocarditis to Typhoid and Paratyphoid Infections. Henry L. Elsner.
21 *Nephrorrhaphy in Intermittent Hydronephrosis. J. Wesley Bovée.
22 Extraperitoneal Ligation of External Iliac for Femoral Aneurism. Wm. B. Crawford.
23 Intussusception: Report of a Case Reduced by Operation. George T. Vaughan.

19.—This article appeared in THE JOURNAL, May 9.

20. **Malignant Endocarditis.**—Elsner remarks that two facts especially impressed him in regard to the relations of malignant endocarditis to typhoid and paratyphoid infections: 1. The typhoid type of malignant endocarditis has rarely been diagnosed during life, and the detection of the focus from which the infection springs has presented the greatest difficulty. 2. In some cases the primary infection may be unnoticed or be so slight as to appear insignificant. He reports cases illustrating this point. Endocarditis of pneumonia is rather rare and it has special anatomical peculiarities. The right side of the heart is attacked more frequently and the aortic valve more often than the mitral. Endocarditis complicating pneumonia is sudden in onset and rapid in its course. He insists on the importance of the occurrence of chills as indicating secondary infection if the case is a primary typhoid, and also the importance of frequent examinations of the blood, not depending on the blood count alone. Repeated negative results of blood cultures do not exclude the presence of ulcerative endocarditis.

21. **Intermittent Hydronephrosis.**—The connection of intermittent hydronephrosis with mobile kidney is emphasized by Bovée, who reports two cases relieved by nephrorrhaphy, fixing the kidney in its normal position, thus straightening out the urethra and preventing temporary angulation which caused intermittent obstruction.

Medical Record, New York.

May 9.

24 *Presidential Address, American Medical Association: Medical Education in the United States. Frank Billings.
25 *Oration in Medicine, American Medical Association: Social Conditions in America in Their Relation to Medical Progress and Disease. J. M. Anders.
26 *Oration in Surgery, American Medical Association: Cancer and Immunity. A. F. Jonas.

American Medicine, Philadelphia.

May 9.

27 *Presidential Address, American Medical Association: Medical Education in the United States. Frank Billings.
28 *Oration in Medicine, American Medical Association: Social Conditions in America in Their Relation to Medical Progress and Disease. J. M. Anders.
29 *Oration in Surgery, American Medical Association: Cancer and Immunity. A. F. Jonas.

24 to 29.—All these articles appeared in THE JOURNAL, May 9.

Cincinnati Lancet-Clinic.

May 9.

30 *Heredity, with Especial Reference to Certain Eye Affections. Francis Dowling.
31 The Country Doctor—My First Case of Labor in the Country. John G. Albers.
32 Surgery of Prostate, Pancreas, Diaphragm and Spleen. (Continued.) R. Merrill Ricketts.

30. **Heredity.**—Dowling discusses heredity in general, especially in its relation to eye disorders. He finds pathologic hereditary transmission particularly marked in cases of certain eye affections. In many instances the morbid processes are latent and require some external injury to serve as an exciting cause for their development. To this class belong myopia, cataract, glaucoma, etc., though some of these may be present at birth. As a rule the hereditary affections are probably the result of fetal disease. Another class of inherited eye diseases belong to those maladies which the parents transmit to their offspring in the shape of a dyscrasia, such as the tuberculous, the scrofulous, the syphilitic, etc., which lay the foundation for various eye affections. In this connection, also, he mentions consanguinity and the frequency of retinitis pigmentosa in these cases, besides myopia, color blindness and ordinary blindness. He especially calls attention to the part the color of the eye seems to play. Dark eyes are seemingly the most subject to these hereditary disorders.

St. Louis Medical Review.

May 2.

33 Address at the Commencement Exercises of the Marion Sims-Beaumont College of Medicine. Thomas H. Carter.
34 *A Certain and Permanent Cure of Painful Tic—Tic Douloureux. J. K. Bauduy.

34. **Tic Douloureux.**—The Dana method of administering progressively increasing and massive doses of strychnia is endorsed in neuralgia by Bauduy. He has tried this, using an auxiliary nerve food with great success. While he admits that strychnia needs to be used with caution and the effects watched, he has employed it by the mouth, gradually increasing the dose until 1/10 of a grain three times a day was used for some time in connection with the anode galvanic treatment to the nerve, and with arsenic and iodid of potassium. He is convinced that it will accomplish radical cures.

Brooklyn Medical Journal.

May.

35 *Congenital Hypertrophic Stenosis of the Pylorus. Frank Whitfield Shaw.
36 *Illuminating Gas Poisoning. Paul M. Pilcher.
37 *Causes and Relief of the Summer Mortality Among Brooklyn Children. C. LeGrand Kerr.
38 The Etiology of Insanity. R. C. F. Combes.

35. **Congenital Hypertrophic Stenosis of the Pylorus.**—Shaw gives the history of the recognition of this condition and describes its symptoms. It is usually fatal in the ordinary type in about ten to fourteen weeks. He recognizes, however, two other varieties of the same pathologic condition, one of

which is the so-called congenital spasm of the pylorus, first suggested by Thompson of Edinburgh and assigned by him as the primary cause or etiologic factor of pyloric hypertrophy. In these cases recovery usually occurs in a few days without operation. In the second type the stenosis appears at four or five years and upwards and he reports cases which he thinks may be classed under this head—an incomplete stenosis with only occasional spasm, but complete closure coming on gradually. He also reports two cases of partial pyloric hypertrophy in which spasm appeared to predominate. Excepting in such cases as the last two reported, the only successful treatment is operative. In nearly all any other measure is not lasting. In conclusion he says that cases of sudden and persistent vomiting occurring soon after birth without any ascribable cause, resisting all treatment, should be looked on with suspicion and receive at least a provisional diagnosis of congenital pyloric stenosis. Similarly, disease of the pylorus ought to be suspected in case of cyclic vomiting extending over several years.

36. **Illuminating Gas Poisoning.**—Pilcher has had a number of cases of this condition under his care and reports several in detail. He holds that the toxic effects of illuminating gas are primarily due to chemical changes produced in the constituent elements of the blood, this being a substitution of carbon monoxid hemoglobin for the oxyhemoglobin, so diminishing the supply of oxygen to the tissues. The direct cause of most of the symptoms is diminished percentage of oxygen in the arterial blood supplying the central nervous system. This would indicate a treatment by the administration of pure oxygen in order to force it into simple solution in the blood and so reinforce the remaining oxyhemoglobin. For the further purpose of supporting the circulation, diluting the poison, assisting its elimination and its possible influences in breaking up the chemical combination of the CO with the hemoglobin, a copious infusion of normal salt solution should be administered. In severe cases direct blood transfusion should be practiced. To control the tendency to acute cardiac dilatation, a free use of cardiac stimulants should be early resorted to. Edema of the lungs is the chief of the secondary sources of danger and must be constantly watched for and every possible measure taken to guard against it.

37. **Infant Mortality.**—Kerr reviews the statistics of infant mortality in Brooklyn and calls attention to the defects which increase it. He thinks the chief needs are a rigid supervision of all cases of pertussis, a recognition by the public of the dangers of neglected cases of measles, cleaner streets, more care in the preparation of the infant's food and, most of all, a good, wholesome, clean milk supply on which the physician can absolutely depend for his modifications.

American Journal of the Medical Sciences, Philadelphia.
May.

39 Anatomical Study of a Short-Limbed Dwarf, with Special Reference to Osteogenesis Imperfecta and Chondrodystrophia Fetalis. Ludvig Hektoen.
40 A New Method of Correcting Flexion Deformity at the Knee-Joint. Royal Whitman.
41 *Pronation of the Foot. E. J. Huhner.
42 A Case of Aneurism of the Transverse Portion of the Aortic Arch in a Girl of Nine Years, with Table of Reported Cases Under Twenty Years of Age. Theodore LeBoutillier.
43 *Some Notes on the Opium Habit and its Treatment. Smith E. Jelliffe.
44 Volvulus of the Small Intestine—Its Relations to Hernia, Torsion of the Entire Mesentery; Report and Résumé of Cases. George T. Vaughan.
45 *Intestinal Perforation During the Course of Typhoid Fever, and Its Surgical Aspects. C. E. Briggs.
46 Some Phases of Gallstone Disease, with Special Reference to Diagnosis and Treatment. D. D. Stewart.
47 Peritonitis of the Duodenal Region. James P. Warbasse.
48 *A Contribution to the Study of the Human Blood Pressure in Some Pathological Conditions. George W. Norris.

41. **Pronation of the Foot.**—Huhner describes this condition, which is not flat foot, but has been called weakened foot or weak ankle. The head of the astragalus rotates inward and backward, its body forward and outward, and the internal malleolus moves backward and the external forward. The front part of the foot is abducted as a whole, and the calcaneum rotates toward a valgus position. In this condition care should be taken as regards footwear. Sometimes raising the inner side of the shoe will be all that is needed. Tip-toe exercises should be given to strengthen the adductors and external rotators of the foot. For mechanical support he advises an apparatus devised by Lovett and Cotton. He finds this condition very frequent, about 64 per cent. of males and nearly 80 per cent. of females are thus affected.

43. **The Opium Habit.**—The opium habit is considered by Jelliffe as probably very frequent and in its psychology having a parallelism with the alcohol habit. The idea that it is incurable should never be accepted by the medical man. There are great variations in the cases. Some patients can voluntarily give up the habit while others do not care to. The cardinal principles on which a rational therapy are to be founded are, he thinks, the substitution of different ideas by suggestion and of different sensations by other drugs. His experience is that hyperbromidization according to Macleod's method is best. His experience with the hyoscin treatment of Dr. Lott is rather contradictory. In one or two cases it has given him an unpleasant shock from dangerous collapse during its administration. Heroin, he thinks, may be a useful drug in these conditions in many cases, though he does not consider it reliably efficient. Several cases are reported.

45. **Typhoid Perforations.**—The frequency of this condition is estimated by Briggs as very great. With a death rate of 10 per cent. there would be 50,000 mortality per annum from typhoid in the United States, and perforation causes about one-third of these deaths, giving, therefore, a death rate of something over 16,000 or 17,000 cases of typhoid perforation per annum. The usefulness of operation has become established of late years and operative technic is probably nearly perfected; improvement will be along the line of early and accurate diagnosis. The mortality following operation is not, he thinks, altogether due to general peritonitis. It is important to distinguish between the symptoms and signs of the condition. Of the symptoms, abdominal pain is the most important when present. Spreading sensitiveness is a little more to be relied on than spreading pain. The sensations associated with shock are of considerable importance, but their absence may be disregarded in making the diagnosis. Of the physical signs, muscular resistance is probably the most important. Distension and tympany are not of any consequence as regards perforation *per se*. The presence of abdominal gas outside the intestine, if it can be determined with absolute certainty, is practically a proof of the perforation. Nausea and vomiting are so rare that they are of little aid. Altered respiration is a sign of some consequence and is probably to be interpreted as is muscular resistance, namely, a means of protecting the abdomen. Alteration in temperature may be of some value, but its absence is not conclusive of anything. The pulse is of great importance; it is, of course, an evidence of systemic shock accompanying perforation, but otherwise deserves special attention. There is almost invariably a rise of perhaps twenty beats or more and the occurrence is rather sudden, the quality altered, the tension reduced and the pulse rendered readily compressible. Any sudden marked alteration in the rate and quality is an indication of importance. We know too little as yet of the altered blood conditions. If the diagnosis of hemorrhage is incorrectly made, and, instead of this, perforation has occurred, the desirable opportunity for operation is lost while waiting for demonstration of hemorrhage through the bowel passages. The red count and hemoglobin percentage may, therefore, be of some use. Systemic shock is a matter of very great importance. He sums up the signs and symptoms on which we must mainly rely as pain, sensitiveness, muscular resistance, altered respiration, alteration in rate and quality of the pulse and evidences of systemic shock. The differential diagnosis is discussed at some length. As for treatment, operation is necessary, the sooner the better. Attention must be paid to anesthesia, especially as to the reduction of systemic shock. In some apathetic and stolid patients local anesthesia may be best. Briggs doubts, however, whether the extensive and careful abdominal irrigation usually required can be as well accom-

plished without general anesthesia. Careful, not too hurried, operation is advised and drainage. The question of exploratory incision is, he considers, of the greatest importance. Where perforation is suspected with a not absolutely certain diagnosis, exploration affords the only hope of avoiding a possible catastrophe. The improvement in recovery rate after operation, though as yet not high, is certainly encouraging. In conclusion, he insists on the great value of complete postmortem examinations in all these cases as being more instructive than reports of recovered cases. A complete examination, however, does not mean a complete autopsy.

48. **Blood Pressure.**—Norris discusses the blood pressure in various conditions of disease, such as nephritis, saturnism, heart disorders, cardiac lesions, etc., quoting extensively from the literature. He says:

> In the present state of our knowledge the height of the blood pressure can not be said to be a useful index in regard to the potency of the systemic circulation, nor is it a criterion of sufficient constancy to be used as a basis for prognosis. The pressure index may, in some instances, be regarded as a relative indication for treatment. What, as a rule, we require to know is not so much the actual height of the tension as the amount and character of its fluctuation. We have seen that a fair state of nutrition may be carried on in the convalescence from typhoid fever with a tension of 85 mm. and in arteriosclerosis at 180 mm.

Journal of the Michigan State Medical Society, Detroit.

May.

49 The Technic of Symphysiotomy, with Report of a Case. Frank A. Grawn.
50 Syphilis, Its Management and Control. Albert E. Carrier.
51 *A Preliminary Report of Some Observations on the Blood of Pregnancy and the Puerperium. George E. Pray.
52 Non-Ethical Ethics. D. L. Walmsley.
53 *The Advantages and Limitations of the Rest Cure. George F. Butler.
54 The Non-Surgical Treatment of Epithelial Disease. J. J. Moore.

51. **The Blood in Pregnancy and the Puerperium.**—From a study of the literature and personal examinations, Pray concludes that while blood generation fails to keep pace with the increased vascular area, a serous dilution of the blood takes place. Ordinarily this is not serious and can be overcome by proper hygiene, fresh air, attention to exercise and food and avoidance of constipation. If the vitality is overtaxed, the increased demand of nutrition may call for iron or other tonic treatment. The regeneration of the blood is partly effected by the lessening of the vascular area after labor and subsequent transudation of fluids into the tissues. The leucocytosis is due to increased action of the enlarged lymph glands of the pelvis, and in part to the increased metabolism which causes a somewhat toxic action. The lochia aid in its decrease. The persistence is accounted for by the fact that the involution of the hypertrophied pelvic organs and breast is accomplished in a great measure by the leucocytes. The blood after cesarean section shows the same general conditions as after normal labors.

53. **The Rest Cure.**—Butler's paper is largely a criticism of the methods of the Weir-Mitchell rest cure, which he thinks has to some extent gotten into the hands of those who use it in an unethical way. He also thinks that Mitchell has overestimated the value of overfeeding and underestimated the importance of suggestion. The Playfair school as a badly modified offshoot of the Mitchell school has the same bias; mere alteration of environment is not change. There is danger from the nurses, especially if trained in general hospitals. They are likely to examine for symptoms and suggest them to the patient, thus increasing the introspective tendency. They are also fond of impressing the patient with their importance by narrations of medical and surgical cases which suggest uncomfortable imaginations and increase the nosophobia. The patient needs reassurance rather than conviction as to his case. Intellectual cultivation through reading by the nurse, and cheerful yet logical conversation by the physician on the source and character of the patient's fears are excellent means of combating the distressing mental conditions of rest cure patients. Another error prominent in ordinary rest cures is that in dietetics. The patient, not the disease label, must be considered. While milk is valuable, it will cause gastrointestinal catarrh in many cases and buttermilk might often take its place, but is forbidden by many physicians. The necessity for hot and cold baths is mentioned, but the patient's disinclination for them is generally humored. Massage, which simply supplies the place of exercise, is too often given under the pretense of some occult, magnetic, osteopathic or hypnotic influence. Under these guises it is positively harmful and a mental and physical poison. The masseur needs to be kept in his own place and is too apt, like the nurse, to prescribe, diagnose and give clinical lectures. Some masseurs, Butler says, are perverts, hence proper selection and strict supervision of masseurs and massage is imperatively necessary. Electricity has the same ill effects unless it is explained to the patient. It is simply a delicate localized form of exercise. The medicinal treatment in the rest cure should be minimal and directed only to symptomatic indications which can not be overcome by the proper bowel, bladder and uterine hygiene, diet, massage and electricity. There is too much use of the bromids, for which Mitchell is partially responsible. The bromid, chloral and other drug habits are sometimes created through rest cures, and this possibility receives too little attention. Another necessity in the rest cure is that of bringing about periodic functions in the gastro-intestinal canal. It should be looked on as a method of education of the system, not merely as a therapeutic measure.

The Laryngoscope, St. Louis.

April.

55 *Local Anesthesia in Surgery of the Upper Air Passages. J. A. Bodine.
56 *Remarks on General Anesthesia in Operations Involving the Upper Air Passages. Thomas L. Bennett.
57 Membranous and Ulcerative Pharyngitis of Streptococcic Origin. S. L. Ledbetter.
58 *Acute Laryngitis of Singers; Its Abortive Treatment. H. Holbrook Curtis.
59 Report of a Case of Paralysis of Both Internal Thyro-arytenoid Muscles. W. G. B. Harland.
60 *The Treatment of Acute Mastoiditis and Its Influence upon Audition. James Francis McCaw.
61 *The Question of Nasal Treatment for the Cure of Diseases of the Ear. Alex. W. Stirling.
62 Septal Fallacies. Beaman Douglass.

55. **Local Anesthesia in Surgery of the Upper Air Passages.**—Bodine insists on the importance of regarding the psychic element in local anesthesia of the upper air passages. He describes the methods of using cocain and claims that many symptoms thought to be due to cocain idiosyncrasy are only manifestations of nervous fright. In some cases, of course, application to the mucous membrane is alone possible, but it is not an entirely satisfactory method. He notices in conclusion the Crile method of "blocking" the nerve, thus cutting off the reflexes from and anesthetizing its territory.

56. **General Anesthesia in Operations on the Upper-Air Passages.**—The difficulties of operating in the upper-air passages on account of the necessity of having free respiration at the same time, etc., are noticed by Bennett, who then discusses the different anesthetics employed. He thinks that while nitrous oxid has the best record for safety, that if it were used for long operations this would not be the case. The greatest contraindication to its use is the mechanical obstruction to respiration. For prolonged operations ether is the safest and should be preceded by nitrous oxid when possible. Chloroform is the most dangerous. Its increased mortality, he thinks, is due almost entirely to the following factors: 1. Unusual position, of which sitting is the most dangerous; 2, interference with respiration; 3, sudden hemorrhage, usual in many nose and throat operations. By the avoidance as far as possible of these dangerous factors he thinks that chloroform can be employed with reasonable safety. It should be preceded, if possible, by ether or gas or gas and ether. The ether or gas and ether is probably the best for prolonged operations in the removal of tonsils or adenoids. Some children are not capable of being sufficiently long anesthetized by the nitrous oxid alone. The use of ether stimulates the patient and a slow recovery of consciousness is of advantage in sparing the patient the sights and sensations which must accompany the first moments after the removal of tonsils or adenoids. Ether increases the tendency to immediate hemorrhage. If chloroform is used it should be administered sparingly, the head kept

low and respiration interfered with as little as possible. Bennett prefers full anesthesia in these cases. Protection of the lower-air passages from entrance of foreign matter is one of the most important matters in operating on the upper-air passages. In ordinary cases without tracheotomy danger from this source is prevented by frequent swabbing of the throat during the operation, by the placing of pads to receive matter passing toward the lungs, by the position of the patient and by a degree of narcosis in which the patient protects himself by coughing and swallowing. In conclusion, he remarks in regard to a method of giving anesthesia devised by Crile, completely protecting the lower-air passages by introducing heavy walled rubber tubes through the nostrils to a point in the pharynx opposite the top of the larynx, respiration taking place through the tubes and the anesthetic applied in this manner, while the mouth is kept opened, the tongue pulled well forward and the space thus formed at the back of the pharynx is packed tightly with gauze. In the cases where he has used this method of protection of the lower-air passages it has been absolute, the respiration has been normal and the narcosis perfect.

58. **Acute Laryngitis of Singers.**—After first noticing traumatic laryngitis, Curtis remarks that the most common cases are of nervous origin due to mal-coördination of the intrinsic muscles from perverted inhibitory function, or paresis of the motor nerves, and nearly always accompanied with congestion. We must observe the shape of the glottic chink. A unilateral adductor paralysis should at once lead us to a guarded prognosis. We should watch in deep respiration to see if paralysis is complete. Bilateral adductor paralysis is generally functional in origin, due to hysteria or reflex causes, but in almost all the laryngeal inflammations we notice some paresis of the lateral arytenoid muscles. In abductor paresis we have an affection of the crico-arytenoid postici muscles frequently due to pressure on the recurrent nerves from enlarged bronchial glands, or disturbance of the vagus. This is often produced by a simple cold. But the most common of all the pareses accompanying a laryngitis is paresis of the thyro-arytenoid internus and externus muscles. The elliptical chink of the glottis caused by a paresis of the internal thyro-arytenoid is familiar. Less frequent are those where the cords are deflected posteriorly to the right or left side or there is a double ellipse caused by combined paresis of the arytenoid and the external thyro-arytenoid muscles. The patient almost always presents himself trying to talk in a loud tone with a very husky voice. The first thing in treatment is to insist on absolute silence, or a tone whispered on the lips with no laryngeal quality in the voice. This must be enjoined, until the sound written "humph" may be made without effort through the nose, the mouth being closed. Then he commences vowel exercises, using words like ming, mong, ding, dong, maw, mow, etc., as an adjunct to treatment. The instant innervation is re-established, muscle exercises to overcome the slight infiltration may be employed. From the first he gives strychnia internally and applies static or faradic electricity along the course of the recurrent laryngeal nerves. Adrenalin chlorid solution sprayed into the larynx before tone exercise is commenced is very useful. He also alternates the exercises with massage each side of the trachea and thyroid as well as under the ramus and angle of the jaw. A cold pack is then applied to the throat and the pyriform sinuses are swabbed with tincture of iodin and glycerin in equal parts, to stimulate the nerves and produce a counter-irritation without the vocal larynx. Nutrition and elimination must be looked after. The respired air must be cold and pure. Later, after the laryngitis has been relieved, he would use a spray of 1-1,000 solution of adrenalin in four volumes of water during a performance, alternated with an inhalation of menthol in albolene (5 to 10 grs. to the ounce) or an inhalation of iodoform in ether. He has saved many performances by using this method and considers it the simplest and best.

60. **Acute Mastoiditis.**—McCaw has found no reference in the literature to the influence of acute mastoiditis on audition, and gives his views on the subject. His conclusions are offered as follows:

1. Great reliance can be placed on abortive measures in the hemorrhagic variety of acute tympano-mastoiditis following influenza, with a reasonably certain prognosis of normal hearing. In no other form of the disease can this be done. 2. The period of the disease at which appropriate treatment is applied influences the ultimate functional result. 3. In all cases requiring operation the earlier we attack them surgically, the greater will be the amount of hearing preserved. 4. The dry method of post-operative treatment seems to influence the function of audition, but to a less extent than early surgical interference.

61. **Ear Diseases.**—Stirling finds that nasal treatment is unprofitable to the patient in case of pure sclerosis, and that in aural catarrh it should be limited to removal of the conditions which may be interfering with recovery of the mucous membrane lying between the nose and tympanum. A nasal operation for the sake of the ear should be one that is advisable for the sake of the nose. In a few cases of slight adenoids situated around the orifice of the eustachian tubes it may be advisable to remove them, even when there may be few or no symptoms referable to the nasopharynx.

New York State Journal of Medicine, New York.

May.

SYMPOSIUM ON PNEUMONIA.

63 Etiology, Its Infectiousness, and Methods of Elucidating the Pneumonia Diplococcus. C. D. Kline.
64 Diagnosis in Pneumonia—General and Differential. J. H. Crosby.
65 Complications of Pneumonia. S. W. S. Toms.
66 Pneumonia Complications with Surgical Operations. G. A. Leitner.
67 Treatment of Pneumonia. G. F. Blauvelt.
68 *Ergot in Pneumonia. Alfred T. Livingston.
69 *The Kidney of Pregnancy. John O. Polak.
70 Albuminuric Retinitis of Pregnancy. James W. Ingalls.
71 *The Pathogenesis and Etiology of Puerperal Eclampsia—A Plea for the More Systematic Observation of Patients During Pregnancy. Frederick P. Hammond.
72 *Treatment in Gynecology from a Medical Standpoint. Mary Gage-Day.
73 *The Roentgen Ray in Obstetrics. Joseph B. Cook.

68. **Pneumonia.**—Livingston recommends the use of ergot in pneumonia on the ground that the principal underlying condition in the disease is dilated blood vessels and that ergot is the only general equalizer of the circulation. He claims that if called sufficiently early, while the disease is still a matter of congestion, all that is needed is a hypodermic syringe and a solution of ergot, and that the free use of the drug in the first stage will abort, cut short or markedly limit the extent of the second stage and also guard against complications of the disease. He discussed the subject and the mode of administration in THE JOURNAL, March 21, 1903, p. 774.

69.—This article has appeared elsewhere. See THE JOURNAL of May 9, ¶32, p. 1323.

71.—See abstract in THE JOURNAL, xxxix, p. 1204.

72.—Ibid.

73. **X-Rays in Obstetrics.**—Cooke reviews the possible use of the Roentgen ray in obstetric cases and deduces the following conclusions:

The value of the *x*-ray for studying the dimensions of the pelvis is, for practical purposes, lost, because of the difficulties attendant on its use, and at best it is probably not so reliable as mensuration and palpation performed by the skilled observer. In the study of the gravid uterus the results are wholly unsatisfactory when compared with those obtained by the ordinary recognized methods of examination. As a means of diagnosing certain forms of ectopic gestation fairly reliable presumptive evidence may possibly be secured, but it would need the corroboration of more positive methods before it could be definitely accepted. Advanced pseudocyesis could doubtless be detected by the use of the *x*-rays, but the administration of a little chloroform would accomplish the same result in a far simpler manner. In suspected twin pregnancies, where diagnosis can not be made with certainty, the *x*-ray may have a distinct diagnostic value, and would doubtless be of assistance in these rare conditions.

Indiana Medical Journal, Indianapolis.

May.

74 Address, American Laryngological, Rhinological and Otological Society. L. C. Cline.
75 Vaccination Record of 138 Students of the Indiana Medical College. A. W. Brayton and Charles E. Ferguson.
76 Education by Occupations. William L. Bryan.
77 *The Intravenous Injection of Formaldehyd as a Cure for Septicemia and Its Use in Smallpox. Nelson D. Brayton.

77. **Formaldehyd in Septicemia.**—Brayton has investigated the use of formaldehyd in smallpox and notices its advantages in variolous septicemia. He has collected the history of the use of formalin infusions in five different cases, all fatal, and does not believe that any germicide can be introduced into

the vascular system in quantities sufficient to destroy the germs without being destructive to the delicate tissues with which it comes in contact, and, inasmuch as effective dilution would necessarily be fatal to the patient, its use is contra-indicated. For the present we should confine ourselves in the severer forms of sepsis to the use of normal salt solutions or those more nearly conforming to the constituents of the blood plasma. The response to the infusions in the cases described was quick and remarkable, illustrating the necessity for the addition of fluids to the blood in pustular smallpox.

Annals of Gynecology and Pediatry, Boston.

May.

78 *The Scope of the Vaginal Incision. Andrew F. Currier.
79 *Cancer of the Cervix; Treatment by X-Ray. Thomas P. Scully.
80 *Hyperplasia and Hypertrophy of the Uterus. Charles G. Gelger.

78. **Vaginal Incision.**—The usefulness of anterior or posterior vaginal incision is discussed by Currier and the posterior incision with its modifications has, he thinks, the greatest sphere of usefulness. Why section of the peritoneum by way of the vagina should make less impression on the vitality of the individual than that made through the abdominal wall has never been explained, but it is recognized as a fact. Hemorrhage after vaginal operation is more easily controlled; there is less danger and the elimination of a possible hernia later is of some importance. The anterior vaginal incision may be made for certain diseases and dislocations of the uterus, for certain diseases of the tubes and ovaries and occasionally for the treatment of inflammatory pelvic exudates. The most frequent indication is retroflexion and it will often be found useful in cases where tuberculosis or serious heart disease or disease of the liver or kidneys renders pregnancy undesirable, and in which the fallopian tubes may be ligated to prevent it. Myomata of the anterior wall of the uterus can be removed in this way. It also will occasionally be a valuable aid in the diagnosis of disease conditions in the anterior segment of the pelvis. The posterior incision is indicated under the following heads: 1. Diagnosis; 2, pelvic exudates; 3, tumors of the appendages; 4, pediculated myomata; 5, intraligamentous cysts; 6, displacements of the uterus and appendages; 7, accumulations of blood in the pelvic or abdominal cavity, not encapsulated or isolated; 8, some of the exigencies of parturition and the puerperal state. This enumeration shows it has a very broad field of usefulness. Details of its application are given.

79. **Cancer of the Cervix Treated by the X-Rays.**—Three cases are reported by Scully, all of which were greatly relieved and apparently well on towards recovery. He has two other cases still under treatment.

80.—See abstract in THE JOURNAL of January 17, p. 189.

Buffalo Medical Journal.

May.

81 Popular Medical Education; Its Aid in Limiting the Spread of Disease. J. D. Macpherson.
82 The Diagnosis of General Paralysis of the Insane. William L. Russell.
83 Infantile Eclampsia. A. J. Colton.
84 *On the Evidence of Nuclear Division of Certain Cell Inclusions (Thoma, Söbring, Plimmer's Bodies) in Cancerous Epithelium. Harvey R. Gaylord.

84. **Cancer.**—Gaylord gives his findings at length with numerous illustrations. He discovers in cancer bodies which seem to him identical in appearance with certain ameboid forms, and remarks in conclusion that the spores of *Plasmodiophora brassicæ* in the phagocytic cells of both warm and cold-blooded animals, when fixed and stained with the methods employed in the investigation of bird's-eye inclusions in cancer, under certain conditions, present an appearance indistinguishable from these inclusions. He also finds that a series of changes can be found in the bird's-eye inclusions in cancer closely resembling the process of nuclear division, as described by Nawaschin in the ameboid form of *Plasmodiophora brassicæ*.

Journal of Cutaneous Diseases, New York.

May.

85 *A Case of Paget's Disease of the Nipple. George Thomas Jackson.
86 Some Therapeutic Properties of Bone Marrow. Chalmers Watson.
87 *Secondary Eruptions in Smallpox. Jay F. Schamberg.

85. **Paget's Disease of the Nipple.**—Jackson reports a case with pathologic findings as given by Dr. Otto H. Schultze, who accepts Thin's designation of malignant papillary dermatitis for this condition. It is not an epithelioma, as commonly stated, but it is incurable and in the majority of cases associated with carcinoma. In all cases, extirpation of the breast with the diseased area without waiting for the clinical diagnosis seems advisable.

87. **Smallpox.**—In this well-illustrated paper, Schamberg describes several forms of secondary eruptions occurring in smallpox, including impetigo variolosa and other skin eruptions of secondary toxic or septic origin, such as exfoliative dermatitis, etc.

Toledo Medical and Surgical Reporter.

May.

88 *The Dietetic Treatment of Diabetes. Victor C. Vaughan.
89 A Study of Heart Lesions from Postmortem Work. S. W. Beckwith.
90 Uremia. E. W. Doherty.
91 Perineal Lacerations. Wm. J. Gillette.
92 Some Conveniences in the Practice of Gynecology and How to Use Them. J. D. Ely.

88. **Diabetes.**—The dietetic treatment of diabetes is discussed by Vaughan, who mentions his tests for sugar. He prefers Trommer's with Fehling's solution, and if there is no reduction sugar is probably absent, but to confirm this Nylander's test may be used. Where both or either of the preceding reactions have been positive, but not prompt and convincing testimony, he also employs the fermentation test, using a control test with normal urine at the same time, and finally, he often seeks confirmatory evidence with the phenylhydrazin test. Having ascertained that the patient is diabetic the question is how far he has lost his capacity of using carbohydrates, and for this purpose he has a graduated diet table for one week in which the carbohydrates are decreased from 330 grams per day to nothing on the seventh day, with a corresponding increase of fats and proteids. The table differs somewhat from those generally prepared in containing relatively more fat and less proteids. When the patient has reached the bill of fare prescribed for the seventh day he usually continues this for five days, during the last two of which the urine should be collected and tested for sugar. If it has disappeared from the urine under this diet, the case comes under the head of what is generally known as mild diabetes. Occasional tests are made to see the amount of carbohydrates that can be consumed without the reappearance of sugar, and then a steady diet is fixed according to the findings. There are certain difficulties, but this plan seems to him the best. He includes in his diet list a certain amount of wine, and says that in this disorder a certain amount of alcohol is often useful. As regards the difference between the mild and severe forms of diabetes, he thinks it is merely one of degree. The patient with mild glycosuria who allows himself to indulge in an excess of carbohydrates is likely to find himself sooner or later the victim of the grave form of the disease. For details of the diet table the reader is referred to the original article.

Medical Standard, Chicago.

May.

93 A Protest Against the So-called Antiseptic Treatment of Typhoid Fever. James G. Mastin.
94 The Operation for Pyosalpinx; with Report of 21 Cases and 5 Secondary Hysterectomies, with One Death. Raymond C. Turck.
95 Materia Medica vs. Christian Science. C. S. N. Hallberg.
96 A Rhinological Clinic. Jacob F. Burkholder.
97 Useful Therapeutic Measures in Phthisis. M. Shellenberger.
98 Pain and Its Indications. E. C. Hill.

Journal of Advanced Therapeutics, New York.

May.

99 *The Treatment of Carcinoma of the Rectum by Mercuric Cataphoresis. G. Betton Massey.
100 The Principles of Treatment in Diseases of the Gastrointestinal Tract. Sigismund Cohn.
101 The Relationship of Psychic Suggestion to Electro-therapeutics. Maurice F. Pilgrim.
102 The Prostatic Electrolyzer, in Its Time- and Trouble-Saving and Curative Aspects. John V. Shoemaker.

99.—This article has appeared elsewhere. See THE JOURNAL of March 28, title 70, p. 874.

Maryland Medical Journal, Baltimore.
May.

103 Retained Intubation Tubes. William T. Watson.
104 A Case of Multiple Sclerosis. Leonard K. Hirshberg.

Fort Wayne Medical Journal-Magazine.
April.

105 A Case of Lateral Sclerosis. B. Van Sweringen.

Oklahoma Medical News-Journal.
May.

106 The Treatment of Intestinal Catarrhs. H. Schandlbauer.
107 An Unusual Gall Bladder Case. Emory Lanphear.
108 Urethral Caruncle. W. E. Dicken.
109 History of Case of Puerperal Fever. J. L. Hoshall.
110 The Psychological Factor in Medicine, and Its Application to Nervous Diseases. John Punton.

Canada Lancet, Toronto.
May.

111 Duty of the State in Regard to Tuberculosis. C. D. Murray.
112 Ontario Medical Association. John Hunter.
113 Some Indications for the Use of Arsenic and Sodium Benzoate. E. Kennedy.
114 Notes of a Case of Sarcoma of the Nose. J. Price Brown.

Journal of the Eye, Ear and Throat Diseases, Baltimore.
March-April.

115 Chronic Trachoma, Amenable to the X-Ray. Henry F. Cassiday and Francis C. Bayne.

Kansas City Medical Index-Lancet.
May.

116 Double Consciousness of Amnesia; Etiologic Factors, with Report of a Case. F. Savary Pearce.
117 Report of a Few Cases of Post-Cecal Appendicitis. H. C. Crowell.
118 The Psychological Factor in Medicine and Its Application to Nervous Diseases. John Punton.
119 Epithelioma of the Rectum—Report of a Case. J. M. Frankenburger.
120 Syphilis of the Nervous System. F. E. Coulter.

Carolina Medical Journal, Charlotte, N. C.
April.

121 X-Rays in the Treatment of Superficial Cancers. Alfred L. Gray.
122 The Diagnosis of Cutaneous Cancers. F. H. Beadles.
123 Some Theories as to the Causation of Cancer. Greer Baughman.
124 Symptoms and Treatment of Calculus Anuria. E. L. Keyes, Jr.

Medical Times and Register, Philadelphia.
April.

125 The Second Sight. W. R. D. Blackwood.
126 A Brief History of the Therapy of Various Forms of Light and Radiotherapy. James M. Windfield.
127 Nasal Catarrh, Fibroid and Mucous Polypus. J. D. Ely.

Atlanta Journal-Record of Medicine.
April.

128 Some Theories as to the Causation of Cancer. Greer Baughman.
129 X-Rays in the Treatment of Superficial Cancers. Alfred L. Gray.
130 Case of Pregnancy Complicated with Albuminuria and Mitral Regurgitation. O. L. Holmes.
131 Ankylostomiasis Duodenale. A. B. McMillan.
132 The Diagnosis of Cutaneous Cancers. F. H. Beadles.
133 The Treatment of Chronic Bronchitis. Robert C. Kenner.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Revue de Chirurgie, Paris.

1 (XXIII, 4.) *Functions of Arm After Resection of Scapula. E. Quénu and G. Renon.—L'état fonctionnel du membre supérieur après la résection totale de l'omoplate pour néoplasmes.
2 *Indications et contre-indications de la solution salée-sodique. E. Tavel.
3 *L'appendicite et l'opium. C. Krafft (Lausanne).
4 *De la ligature des veines et en particulier de la veine cave inférieure. G. Houzel. (Commenced in No. 3.)
5 Fractures ou anomalies de développement de la clavicle. C. Féré and E. Papin.
6 Experimental Study of Fractures of Petrous Bone. M. Patel. Remarques sur certaines variétés de fractures isolées du rocher. Etude exp.
7 Obituary of T. Gaillard Thomas (New York).
8 Ibid., of G. Bouilly (Paris).

1. **Arm After Resection of Scapula.**—Quenu removed the entire scapula from a youth of 16, on account of an osteosarcoma, in October, 1902. He gives 8 cuts showing the fine functioning of the arm at present and the radiographic findings. He has found 38 similar cases in the literature in which the scapula had been removed on account of a malignant tumor with retention of the arm. In 25 cases the results have been highly satisfactory and in all of this number fixation of the humerus had been included in the intervention. This was realized by cicatricial adhesions from the long suppuration in the earlier cases, and in the others by preservation of the acromion or suture of the remnants of the capsule, either to the clavicle or to its ligaments, thus re-establishing the muscular attachments. It is not always easy to re-establish the continuity of the muscles, but it must be done as far as practicable. By operating on these principles the arm will be firm and freely movable. Eight at least of the cases he cites are American.

2. **Tavel's Salt-Soda Solution.**—In 1892 Tavel recommended a saline-alkaline solution as superior to the physiologic salt solution for flushing and sterilizing purposes, on account of certain of its properties. It induces a slight irritation which elicits leucocytosis and phagocytosis, and thus favors the healing of wounds. He never recommended it for subcutaneous or intravenous injection and deprecates such a use for it.

3. **Appendicitis and Opium.**—Krafft points out that when a physician refers to appendicitis he has in mind an inflammation of the mucous lining, while the surgeon always means inflammation of the serous membrane. Much confusion would be avoided if the latter would say "periappendicitis" instead of "appendicitis." Inflammation involving the surrounding parts is more than mere appendicitis. Krafft further argues to prove that purgatives and rectal injections are dangerous in periappendicitis, as the peritoneum, which is always inflamed in this condition, is hindered in its task of encapsulating the lesion if it is shaken and disturbed. Surgeons do not give opium to cure the periappendicitis, but merely to soothe the pain and reduce peristalsis while waiting for the operation. The latter is the only rational treatment, and opium is an adjuvant for it. It relieves the patient and, by resting the intestine, favors the formation of adhesions. Injections and purgatives are useless and may be dangerous. They should always be proscribed the moment the physician notes a sensitive area at McBurney's point. Until the tenderness develops, the case belongs to the physician, as it is still in the mucous membrane stage, and purgatives, injections and other measures to disinfect the large intestine and its adnexa may ward off eventual periappendicitis, but so soon as tenderness at McBurney's point is discovered, the surgeon should be called in to superintend the further developments.

4. **Ligature of Vena Cava.**—Houzel reviews the history of ligatures of veins, especially of the inferior vena cava, and describes a personal case in which it was successfully done. He also quotes in full Bottini's similar operation and a third one by Schede, in which the patient succumbed eighteen days later. In his own case the inferior vena cava was torn during a nephrectomy for an old, large pyonephrosis. The patient was a woman of 36, a street vender, otherwise healthy. The vein was the size of a thumb, clinging close to the spine, and was torn for about 1 cm., the blood spurting as if from an artery. A catgut ligature was applied above and below the tear, just beyond the forceps on each side. The renal vessels were each ligated separately and the kidney removed entire, without escape of pus. Except for a slight, transient edema of the legs, no disturbances were noted from the complete arrest of the venous circulation in the cava, either in this case or in Bottini's. In Schede's case a lateral suture was applied, not a ligature. Theoretically, this is the preferable intervention, but his patient died, while the two others recovered. The autopsy showed fatty degeneration of the heart, with slight constriction at the point of the suture. Lateral suture exposes to the danger of thrombosis or embolism. Purpura experimented on dogs, and found that abrupt ligation of the vena cava was always fatal, but that if the vein were first constricted for a time and then ligated, the animals bore the intervention without apparent injury. In the cases above described the circumstances were probably of the same character. The pressure of the tumor had compressed the vein and thus

prepared it for successful ligation. In Bottini's operation a portion of the vein was resected adherent to the tumor, a lymphosarcoma. Recovery was interrupted by an abscess, after which it proceeded normally. Marconi, who reported the operation in the Italian "Clinica Chirurgica" of Dec. 31, 1893, qualified it as "the greatest operation ever done at any epoch or in any country." Illustrations of the tumor and adherent ring of vein accompany this article.

Klinisch-Therapeutische Wochenschrift, Vienna.

Last indexed page 1367.

9 (No. 51.) *Treatment of Arteriosclerosis with an Organic Serum. C. Trunecek (Prague).—Die Behandlung der Arteriosklerose mit subkutanen Injektionen von anorganischem Serum. (Commenced in No. 50.)

10 Results for Child of Artificial Premature Delivery. A. Mueller.—Ueber die Erfolge der künstlichen Frühgeburt für das kindliche Leben.

11 (No. 52.) Plastic Reproduction of Infants' Stools. H. Roeder.—Ein Beitrag zur Anwendung der Moulagentechnik.

12 *Formol-Phenol Treatment of Lupus and Cancer. A. Ranelletti.—Ueber eine neue Behandlungsmethode der einem operativen Eingriffe unzulänglichen krebsigen und anderweitigen bösartigen Neubildungen und des Lupus.

13 (X, 1.) Epilepsy and Hysteria, Especially Morbid Disturbances in Consciousness from Forensic Standpoint. M. Köppen.—Ueber Epilepsie und Hysterie in forensischer Beziehung insbesondere über die krankenhaften Bewusstseinsstörungen.

14 Feeding Instinct and Hunger. A. Meisl.—Ernährungstrieb und Hunger.

15 *Prophylaxis of Otitis in Measles. M. Sugar.—Ueber Masernotitis und deren prophylaktische Behandlungen.

16 Die toxischen und autotoxischen Dermatosen. S. Ehrmann.

17 (Nos. 2 to 5.) Extirpation of Spleen on Account of Torsion of Pedicle of Movable Spleen. E. Ullmann.—Milzextirpation wegen Stieltorsion der Wandermilz.

18 Spondylitis typhosa. W. Berent. Collective Review.

19 Migräne und habituelle Obstipation. F. Schilling.

20 Tests of "Nutrient Sugar." E. Moro.—Ernährungsversuche mit Soxhlet's Nährzucker.

21 Ueber Diagnose und Therapie der Migräne. J. P. Karplus.

22 (No. 6.) *Zur Anwendung subkutaner Injektionen von Gehirn-Emulsion bei Tetanus traumaticus. A. Krokiewicz.

23 Disputed Questions in Syphilidology. M. v. Niessen.—Syphilidologische Streitfragen. (Commenced in No. 5.)

24 (No. 7.) *Zur lokalen Behandlung interner Affektionen. M. Schüller.

25 Infantile Cirrhosis. L. Bartenstein.—Die Leber Cirrhose im Kindesalter. (Commenced in No. 6.)

26 Nervous Affections in Arteriosclerosis and Uric Acid Diathesis. M. Sternberg.—Ueber nervöse Erkrankungen bei Arteriosklerose und harnsäurer Diathese.

27 (No. 8.) Ueber die Wirkung des Ichthargans bei den gonorrhoischen Erkrankungen des Weibes. G. Woyer.

28 *Zur Etiologie des Koterbrechens. J. Plesch.

29 (No. 9.) Ueber blennorrhoische Gelenkserkrankungen (Joint affections). G. Nobl.

30 (No. 10.) Ueber extrauterine Gravidität. L. v. Dittel.

31 (No. 11.) Boric Acid in Scorbutus. V. Vohryzek.—Ueber den therap. Werth der Borsäure bei Skorbutus. (Commenced in No. 10.)

32 Reflex and Radiating Processes from Ear. V. Urbantschitsch.—Ueber die vom Ohre ausgehenden Irradiations- und Reflex-Vorgänge.

33 (No. 12.) Beitrag zur Behandlung des Pes calcaneus paralyticus. E. Scheffler (Schanz's Orthopedic Institute, Dresden).

34 Zur Therapie der Neurasthenie. A. Holländer.

9. Treatment of Arteriosclerosis with Anorganic Serum.—THE JOURNAL has published accounts of the experience of various writers with Trunecek's "serum" from time to time. He states now that the direct indications for it are permanent high pulse tension (without nephritis), dyspnea, cyanosis, angina pectoris, symptoms of arteriosclerosis of the brain and chronic alcohol intoxication. Besides these conditions, a favorable effect may be anticipated when, in addition to subjective symptoms of arteriosclerosis, the urine is very acid or contains a large amount of urates or calcium oxalate. Drinks and exercise should be avoided that tax the heart. The food should be selected with a view to facilitate oxidations and increase alkalinity, and taken in small amounts at a time. The serum reduces the arterial tension, and with this subside the subjective symptoms, the sounds in the ears, vertigo or polyuria. It has proved a sovereign remedy for the dyspnea of arteriosclerosis, even in cases in which the symptoms had not been relieved by sedatives. In severe cases the injections may have to be repeated every third day. The benefit is not always constant in angina pectoris, some cases proving rebellious, while others are quite cured by 15 to 20 injections, at intervals of four or five days. In a case of aneurism of the right subclavian with compression of the brachial plexus, the dyspnea which occurred constantly on the slightest exertion was completely cured and the paresis of the right arm much improved. The patient felt quite well for fifteen months, when the arm involved became the seat of severe pains, which vanished after injection of 150 c.c. of the serum. In a case of aneurism of the aorta the paresis of the recurrens was also partially relieved by the treatment, but the patient succumbed later. In various paretic conditions, especially those consecutive to apoplexy, even after they have lasted for months and years, striking and durable improvement may be attained by 8 to 10 injections of 3 to 5 c.c. each, repeated at three to five day intervals. By the time 100 to 150 c.c. have been injected the patient is usually completely cured. It is also effective in cases of chronic alcoholism free from gross lesions in kidneys or liver. Appetite and sleep return in arteriosclerotic cachexia, and the cyanosis is usually entirely banished by injection of 10 c.c. of the serum. The composition of the serum was described in THE JOURNAL, XXXVIII, p. 484. Trunecek thinks that its action is probably due in part to its binding a certain amount of the carbon dioxid in the blood. As much as 2 c.c. are bound by the usual injection of 5 c.c. of the serum. He finds it more difficult to explain why the function of the heart and paretic conditions are so much improved by even a small amount of the serum.

12. Formol-Phenol Treatment of Cancer and Lupus.—Ranelletti reports further experiences with his "mirmol," a combination of 10 per cent. formol with .3 per cent. phenol, for local application to malignant neoplasms and to lupus. The lesion is first cleansed with warm water to which 20 to 40 drops of formalin have been added per liter. After drying, it is swabbed with a solution of the mirmol, one part in nine parts warm water at first, gradually increasing to a 25 per cent. solution or using full strength, and an impermeable dressing applied. He describes 35 cases of malignant neoplasms treated on these principles and a few typical cases of lupus to portray the great benefit derived. The results of mirmol treatment are durable, he adds, and he recommends it for general adoption for cases in which surgical intervention is impracticable and in which the lesion can be conveniently bandaged. One of his lupus cases had resisted years of treatment of various kinds, including a course of tuberculin, the ulceration constantly discharging and the lesions spreading. Under mirmol the ulceration dried up and was substituted by cicatricial tissue, the large nodules became atrophied and the smaller disappeared entirely. The patient moved away from the city before treatment had been quite concluded, but the lupus had been reduced to a very few minute ulcers.

15. Prevention of Otitis in Measles.—Sugar has every child with measles treated when first seen by instillation of a few drops of a .5 per cent. solution of silver nitrate, dropped into the nose as the child lies on his back. Where this has been done as a routine prophylactic measure, otitis developed in only 4 out of the 60 children. On the other hand, in an experience of 111 children not thus treated otitis was observed in 18.

22. Subcutaneous Injection of Brain Emulsion in Traumatic Tetanus.—Krokiewicz brings up to 16 the number of cases, by reporting 3 personal and 1 from Gluzinski's practice. Three of the 16 terminated fatally and in 8 of the 13 recoveries the clinical course had been exceptionally severe. On account of the simplicity and harmlessness of the subcutaneous injection of brain emulsion he reiterates his former appeals to practitioners in general to resort at once to it in cases of tetanus. An emulsion of rabbit brains was used in the 4 cases that he reports. In one 6 injections were made in seven days, the emulsion containing the entire brain of a rabbit each time; in the others, 4 and 5 injections. Previous medicinal treatment had been entirely ineffectual. He thinks that the mortality would be materially reduced if the injections were undertaken earlier.

24. Local Treatment of Internal Affections.—Schüller had occasion to treat, in 1894, a woman with an abscess in the lung consecutive to grippal pneumonia. After evacuation of the abscess a chronic infiltration of the lobe of the lung persisted, inducing a kind of chronic hepatization, rendering the entrance of air impossible. After the failure of internal medi-

cation he injected into various portions of the infiltrated lung about 120 gm. of sterile saline solution. The benefit was evident in a few days. The cough diminished, the sputa became more fluid, the dulness retrogressed and the respiration improved. The saline solution had loosened up the masses accumulated in the alveoles and favored their expulsion in sputa or their absorption, allowing access to the air. The general health rapidly improved as the circulation in the lungs returned to normal. A year later there was no trace of dulness and respiration was full and deep.

28. **Etiology of Fecal Vomiting.**—The patient observed by Plesch had an incipient tuberculous affection in lung and in the intestines, with a history of well-treated syphilis a few years before. The symptom of fecal vomiting was observed for a year, but no sensitive point in the abdomen could be palpated, and no aggravation followed the commencement of the fecal vomiting. The autopsy showed a fistula between the stomach and transverse colon.

Muenchener Med. Wochenschrift, Munich.

35 (L. 14.) *Individuality of Species in Respect to Albuminoids in Milk. A. Schlossmann and E. Moro.—Zur Kenntnis der Artelgenheit der verschiedenen Eiweisskörper der Milch.
36 Serum Reaction with Liver Abscess. Megele.—Widal'sche Serumreaktion bei Leberabszess.
37 *Births After Symphysiotomy. O. Ihl.—Ueber Geburten nach Symph.
38 Bericht über eine durch Schussverletzung bedingte Splenektomie. L. Brennfleck.
39 *Treatment of Anthrax. Federschmidt.—Zur Kasuistik und Therapie des äusseren Milzbrandes des Menschen.
40 Fall rhinogener Pyämie mit Ausgang in Heilung. Grunert.
41 *Zur Diagnostik der Darm-Okklusion. Schneiderlin.
42 *Spontaneous Disintegration of Urinary Calculus. L. Görl.—Spontanzertrümmerung eines Blasensteines.
43 *Semi-Symphysiotomie. Diehl.—Die halbe Symphysiotomie.
44 *Prophylaxis of Seasickness. O. Dornblüth.—Kurze Bemerkung über die See-Krankheit.
45 (No. 15. April 14.) *Anesthetic Action of Yohimbin. L. Loewy and F. Müller (Berlin).—Zur Kenntnis der anästhesierenden Wirkung des Yohimbins (Spiegel).
46 *Ueber juvenile Tabes und ihre Beziehungen zur hereditären Syphilis. F. Linser.
47 Zur Symptomatologie und Therapie des spastischen Schiefhalses (Torticollis spastica), nebst Bemerkungen über die Wirkungsweise elastischer Zügel in der Orthopädie. K. Hasebrock (Hamburg).
48 Gummata at Point of Mercurial Injections. F. Juliusberg (Neisser's Clinic, Breslau).—Gummata an Injektionsstellen von Quecksilberpräparaten.
49 *Serum Treatment of Bubonic Plague. G. Polverini (Bombay and Florence).—Serumtherapie gegen Beulenpest.
50 *Fall von hysterischem Fieber. Tillmann (Tsingtau).
51 *Abnormal Movability of Calculous Gall Bladder. V. Lieblein (Wolfler's Clinic, Prague).—Ueber abnorme Beweglichkeit der Steine führenden Gallenblase.
52 Rare Case of Measles. B. Machold.—Ein seltener Masernfall.
53 Forensic Study of Paranoia. K. Heilbronner.—Ueber die Entmündigung von Paranoikern. (Commenced in No. 14.)
54 *Medical Press in Germany. E. Roth.—Das med. Zeitschriften-Wesen in Deutschland von 1853, 1875 und 1901.
55 (No. 16.) Comparative Study of Blood of Mother and Infant, Amniotic Fluid and Fetal Urine Secretion. W. Zangemeister and Th. Meissl.—Vergleichende Untersuchungen über mütterliches und kindliches Blut und Fruchtwasser, nebst Bemerkungen über die fötale Harnsekretion.
56 *Zur Therapie der Hematocele bei Extrauteringravidität. F. Schenk (Prague).
57 Apparatus for Sterilization of Small Dressings. K. Holzapfel (Kiel).—Zur Sterilisation kleiner Verbandsstoffmengen.
58 *Heart and Apex Beat with Aortic Insufficiency. G. Galli (Baccelli's Clinic, Rome). Herz- und Herzspitzenstoss bei Aortenklappeninsuffizienz.
59 Changes in Blood After Extirpation of Spleen. E. Rautenberg (Königsberg).—Beobachtung von Blutveränderungen nach Milzexstirpation.
60 *Ueber 2 Fälle von perniziöser Anämie. K. v. Hösslin.
61 Ueber Ventilation. K. Wolf.
62 Algebraic Formulæ for Mixtures of Various Degrees of Concentration. Gossner (Brandenburg a. H.).—Formeln zur Herstellung von Mischungen verschiedener Konzentration.
63 Case of Fatal Poisoning with Potassium Bichromate. F. Berka.—Vergiftung mit Kalibichromat.
64 Thermophore Syringe for Paraffin. E. Kantorowicz (Berlin).—Eine neue Paraffinspritze.
65 Die Gefahr der Infektion mit Ankylostoma duod. im Grubenbetrieb. H. Bruns.
66 *Treatment of Laryngeal Tuberculosis. E. Kronenberg (Solingen).—Die Behandlung der Kehlkopftuberkulose. (Commenced in No. 15.)

35. **Specific Albuminoids in Milk.**—The research described confirms the specific character of the constituents of the milk of various species and the importance of mother's milk for infants. A large proportion of the albumin in human milk is dissolved in the milk in the form of "laktalbumin," all ready to pass from the blood of the mother into the blood of the child through the milk, without requiring any chemical transformation. Cow's milk contains very little of this "laktalbumin," and it is altered by heat and requires some chemical transformation before it can be taken up by the infant's blood, in the meanwhile exerting a toxic action. The albumin of one species has an unmistakable toxic action on another species, until the system becomes accustomed to it, like alcohol and nicotin.

37. **Births After Symphysiotomy.**—Three women were delivered at Gessner's Maternity at Erlangen who had previously undergone symphysiotomy. One had borne five children since. In all the conditions were so improved by the symphysiotomy that subsequent births proceeded normally in every respect. Ihl has found only 84 births on record after symphysiotomy. In 50 the delivery was normal; in 24 a second symphysiotomy was required; in 4 version and extraction; in 5 artificial delivery, and in 1 perforation. There is no doubt that, with a child of ordinary size, the pelvis remains permanently enlarged after symphysiotomy.

39. **Treatment of Malignant Pustule.**—Federschmidt advocates immediate excision and reports 3 threatening cases in which excision was followed by complete recovery in one to three days. In 7 other cases in which treatment was medicinal or expectant, 2 deaths occurred.

41. **Diagnosis of Intestinal Occlusion.**—A young woman of 26, with hysteric antecedents, presented symptoms suggesting appendicitis with high fever, and the red, swollen appendix was resected. Some hard masses were palpated in the cecum at the time. The pains recurred and the temperature rose again and again to 40.5 C. At a second laparotomy the hard masses in the large intestine were then recognized as foreign bodies adherent to the walls. They were cautiously manipulated and massaged until detached from the walls and worked along towards the rectum. The abdomen was then sutured. Several hours later copious irrigation of the intestines resulted in the evacuation of ten linen rags, each 4 or 5 sq. cm. in size, and two more were voided a few days later after another brief elevation of temperature, which fell as soon as the rags were passed.

42. **Spontaneous Disintegration of Urinary Calculus.**—Görl was able to watch with the cystoscope the gradual crumbling of two stones in the bladder as the patient, an obese man, was put on an Ebstein diet and two quarts a day of a lithia water.

43. **Half Symphysiotomy.**—Diehl reports the successful delivery of a very small woman with a generally contracted pelvis, by slitting the upper half of the symphysis alone. This semi-symphysiotomy proved sufficient to allow delivery of the child, and the mother was able to be up in three weeks and was soon at work as before, with no apparent trace of the intervention.

44. **Prevention of Seasickness.**—Dornblüth points out that the disagreeable sensations of seasickness, riding in elevators, etc., are connected with the descending motion. He has found that if he takes a deep breath as the descending motion commences, the abdomen is distended and held firm by the diaphragm and no disagreeable sensation is experienced. The measures that have been recommended against seasickness accomplish the purpose as they comply with these conditions, immobilization of the abdomen during the descending motion. He believes that the resistance to seasickness can be enhanced by taking 2 or 3 gm. sodium bromid every evening for a week beforehand and during the trip, if a long one. He adds that it is very important to take regular meals at the accustomed hours, and that an abdominal bandage may well substitute the corset.

45. **Discovery of Anesthetic Action of Yohimbin.**—Loewy refers to Lewitt's article in the "Deutsche Med. Wochft.," 1902, Nos. 47-48, which presents all the facts and literature to date in regard to the efficacy of yohimbin in curing impotency. Magnani has recently discovered that the conjunctiva and cornea lose all sensitiveness for half an hour after instillation of a few drops of a .3 to 1 per cent. solution. The conjunctiva becomes hyperemic, but the pupil is not affected, in which

the action differs from that of cocain. Loewy has been testing this phenomenon and describes his research in detail. The results establish that yohimbin and cocain differ possibly quantitatively, but that qualitatively they are equivalent. Yohimbin in direct application is able to reduce or completely abolish the excitability and power of conduction of both motor and sensory nerves. It also induces anesthesia when applied to the terminals of the sensory nerves in the mucous membranes. This action is transient, as with cocain, and normal conditions are restored afterward. The tests included instillation of .5 to 1 per cent. solution in distilled water or in a .9 per cent. salt solution, in the eyes of animals and man, allowing the removal of foreign bodies in the cornea in three to five minutes without pain. The conjunctiva becomes hyperemic, there is increased lacrymal secretion, but no change in the pupil or accommodation. Tests on the nasal and buccal mucosa were equally conclusive, and also on the sciatic, vagus and sympathetic nerves exposed for a maximum of 4 cm. in rabbits and dogs and on the cervical ganglion in cats, also experimental infusion of the solution in the dural sac and application to the vasomotors of certain vascular areas.

46. **Juvenile Tabes.**—In the case described an unmistakable tabes gradually developed, commencing at 15 and presenting the entire classic syndrome at 25 but no ataxia. Only 21 authentic cases of juvenile tabes are on record, and ataxia was absent in two-thirds. In 17 cases the parents were certainly, and in 2 probably, syphilitic. In the case described the patient's father had acquired syphilis one year before her birth. Juvenile tabes seems to be distinguished by its unusually protracted course. Periods of apparent arrest and even improvement of the symptoms may occur with and without specific treatment. It is a familiar fact that mercurial treatment is less effective the slower the course of the affection.

49. **Serum Treatment of Plague.**—Polverini was four years director of the serum laboratory in Bombay and points out that the conflicting results of tests of antiplague serum are due to the diversity in the technic employed. The same serum may act differently on animals of various species and the results are no criterion of its action on man. He used and recommends the "alternate method" and serum made according to Lustig's method, which, he states, is the only one that has been scientifically tested by protracted experimentation in the hospitals with more than 1,000 cases of plague.

50. **Hysteric Fever.**—The patient was a marine on a German cruiser, and his temperature rose abruptly nearly every day from normal to 104 F. or thereabouts during eighteen days, the mercury on three days running up to 110 and to the very top of the tube in three thermometers on one occasion, thus above 112. He complained of headache and, after the febrile stage, exhibited the psychic stigmata of hysteria, but recovered completely in a month under psycho- and hydro-therapy.

51. **Movability of Gall Bladder.**—Lieblein was puzzled to differentiate a small tumor that could be palpated in the abdomen of a healthy woman of 47. No connection between the tumor and the liver could be discovered, and the tumor could be easily pushed from side to side, under the right ribs or under the left costal arch or into the epigastrium. The laparotomy revealed that it was the gall bladder, with a stone in its fundus, swinging freely on the pedicle formed by the elongated cystic duct.

54. **Growth of the Medical Press in Germany.**—Roth has compiled the statistics of German medical periodicals for the three years, 1853, 1875 and 1901. In 1853 there were 32 general medical journals and 18 devoted to specialties. In 1875 there were 38 general and 55 special, and in 1901, 77 general and 180 special. The list does not include journals devoted to pharmaceutics, anthropology, botany or chemistry nor other than ethical publications.

56. **Treatment of Hematocele in Extrauterine Pregnancy.**—Schenk reviews the experience of others in regard to expectant and operative treatment and gives a summary of the experiences at Prague. The latter demonstrate that the results, both immediate and remote, of expectant and operative treatment are so exactly alike that there is no reason to abandon the former for the latter in all cases. He thinks we should refrain from operating in cases of uncomplicated hematocele, even if very large, if the patient can be supervised. In case of uninterrupted pregnancy we must invariably operate, and only in case of abortion with hematocele when the hemorrhage recurs or when there is hemorrhage from the uterus or signs indicating putrefaction. The only advantage of early intervention is that the operation can be more conservative, as conditions are more favorable than when intervention is postponed. The conditions of the implantation of the ovum in the tube, determined by recent anatomic research, which led to a reaction in favor of early operation, have not proved as important for the clinical course as anticipated.

58. **Heart and Apex Beat in Aortic Insufficiency.**—Galli has been able to find only one case on record—that of Martius, 1889—in which insufficiency of the aortic valve was not accompanied by exaggeration of the heart and apex beat. He has had occasion himself to observe a case in which no apex beat was perceptible and another in which both heart and apex beat were absent. The symptoms exhibited by the first patient were those of mitral insufficiency without a suggestion that the aortic valves were involved. There was diffuse pulsation of the epigastrium and the autopsy disclosed hypertrophy of the right ventricle with adhesions, both probably due to a transient febrile lung affection several years before. The left ventricle was very much hypertrophied, and both aortic and mitral valves were markedly insufficient. In Martius' case the right ventricle was not hypertrophied. Galli's second patient exhibited signs of aortic insufficiency, but neither the heart nor the apex beat was perceptible and there was no hypertrophy of the organ. The patient suffered from ataxia and was more or less bedridden. The ataxia counteracted the valvular defect. As he had no occasion to tax his heart, it had no cause for becoming hypertrophied. The case confirms the value of repose as an essential factor in treatment of valvular affections. When the patient got up the apex beat could be indistinctly perceived and the pulse became stronger and faster. Galli concludes that the apex beat is not so important in the diagnosis of aortic insufficiency as hitherto assumed.

60. **Gastric Origin of Pernicious Anemia.**—Hösslin's two cases corroborate the theory that chronic atrophic processes in the stomach have some connection with the development of pernicious anemia. They also suggest the value of systematic investigation of the functions of the stomach and intestines to elucidate the cause of obscure severe anemias.

66. **Laryngeal Tuberculosis.**—Kronenberg deplores the fact that physicians do not examine the larynx for tuberculous lesions as a routine measure in all persons suspected of tuberculosis. Consequently the laryngeal lesions are frequently beyond control when first seen, as their presence is ignored until they cause symptoms which may not be until in an advanced phase. He advocates surgical treatment of laryngeal tuberculosis whenever, with good general condition, there is a certainty or probability of removing the entire focus. Laryngotomy is indicated only in exceptional cases. The standard procedure is by way of the mouth. If complete ablation is impossible, he would operate only as indicated by threatening complications or to eliminate what interferes with other therapeutic measures. None of the remedies recommended for the purpose has a specific action; galvanocauterization is the most effectual yet known. The physician's important task is to strive for spontaneous healing. This is best accomplished by careful general treatment along the approved lines to enhance the natural resisting powers of the organism, supplemented by local treatment. Unfortunately, he remarks, the majority of patients with laryngeal tuberculosis are poor, and the physical and dietetic measures required are seldom to be procured. Curable cases should be sent to a sanatorium or its equivalent, but the German sanatoria object to receiving tuberculous patients with laryngeal complications. Kronenberg has witnessed a few cases in which a moderately severe tuberculosis of the lungs and larynx healed completely in time. One of his cured patients had been re-

jected by the sanatoria as incurable; he was a particularly intelligent man, who co-operated with the physician in every way.

Riforma Medica, Palermo.

Last indexed page 1331.

67 (No. 6.) Autolysis of Kidney in Experimental Nephritis. U. Minerbi.—Sul decorso dell' autolisi del rene in alcune forme di nefrite.
68 *Therapeutic Injection of Oxygen per Rectum. C. Bernabei (Siena).—Dell' emsuiterapia ossigenata.
69 Recovery After Multiple Stab Wounds in Abdomen. C. Tonarelli.—Ferite penetranti dell' addome con fuoriscita di un ansa del tenue. Ferite nel fegato, nel tenue, nel colon e nel mesenterio. Laparotomia. Guarigione.
70 Diversion of Portal Circulation. E. Arcoleo.—Contributo alla deviazione chirurgica del sangue della vena porta nella cirrosi epatica.
71 Venous Souffle in Cirrhosis. V. Gambarati.—Sopra un caso di soffio venoso udibile sull'ala epatica in individuo affetto da cirrosi epatica volgare.
72 *Emoglobinuria familiare in malarici. M. Luzzatto.
73 (No. 7.) Carcinomi delle tonsille, faringe e parti attigue. G. Bendandi. Five cases.
74 Sulla siero-diagnostica del tifo. G. Caccialanza.
75 *Three Cases of Hereditary Ataxia. C. Mannini.—Alcuni casi di atassia ereditaria o malattia di Friedreich.

68. Therapeutic Injection of Oxygen into the Intestines.—In 1901 Bernabei reported excellent results from the introduction of oxygen into the intestines as a therapeutic measure. He proclaimed that it stimulates the digestive functions, reduces the toxicity of the contents of the intestines and, after it is absorbed, has a manifest influence on the elimination of carbon dioxid and absorption of oxygen by the lungs. It also favorably modifies the composition of the blood and urine and nutrition in general. He reported later experiences with it in "Morgagni" for April, 1902, and in this article describes another series of cases treated with this "emphysema-therapy," as he calls it. In 5 cases of osteomalacia the results were so remarkable that he does not hesitate to affirm that this treatment removes this affection from the incurable class. All the patients had been bedridden on an average for seven years, with severe neuralgic, thoracic and sacro-lumbar pains, but were soon restored to comparative health and resumed their normal mode of life. He introduced about 39,000 c.c. of oxygen in these cases in the course of an average of 52 days, using about 1208 c.c. for one insufflation, or 26 c.c. per kilogram of body weight. The effects were equally fine in arthritis deformans, for which he used about 67,000 c.c. in the course of 63 days, introducing 41 c.c. per kilogram at a time. He found that tuberculous peritonitis responded to this treatment as favorably as to a laparotomy. In this class the amount introduced averaged 48,190 c.c. in 57 days, or 36 c.c. per kilogram at a time. He gives tables showing the influence of the injected oxygen on the respiration and composition of blood and urine. He urges a trial of this measure, at least, in all cases of chronic tuberculous peritonitis before proceeding to surgical intervention. Even if the latter is finally decided on the conditions are rendered more propitious for it. In this and his previous communications he emphasizes the hematogenic, metabolic and dynamogenic indications for this treatment, as encountered in anemia, neuroses, diabetes, osteomalacia, rachitis, ascites, malaria, pellagra, cancer and tuberculosis.

72. **Family Tendency to Hemoglobinuria.**—Luzzatto observed 7 cases of hemoglobinuria in the course of a three months' stay on the Maremma, that hotbed of malaria. One of the patients, an extremely severe case, was cured by repeated and copious subcutaneous injections of physiologic solution. Two other patients were sisters and one exhibited severe hemoglobinuria after ingestion of quinin. Their father had died three years before with hemoglobinuria after taking quinin. The second sister exhibited symptoms of the form of malaria known as "perniciosa comatosa with hemoglobinuria," and had taken no quinin. Both were cured by continued use of quinin. He thinks these facts suggest that there may be a congenital and family tendency to hemoglobinuria in malarial countries and that parasitic invasion or the ingestion of quinin may fan it into a flame.

75. **Hereditary Ataxia.**—Mannini describes 3 cases of Friedreich's disease in two brothers and a sister, from 15 to 25 years old. He calls attention to the gait which was the typical staggering of the drunken man, while the attitude was characteristic, the feet turned in, the head and trunk bent forward. He thinks that a number of the symptoms are due to atony, asthenia, neuro-muscular ataxia. Nystagmus is not an inevitable accompaniment and the trophic disturbances, paraplegia and deformations of the bones may be secondary phenomena and not appear until late. An infectious disease may be the starting point for the disease as in one of the cases described, or it may commence after the age of 15 and without inducing disturbances in the sexual sphere.

British Medical Journal, London.

May 2.

76 *Operative Treatment of Chronic Facial Palsy of Peripheral Origin. Charles A. Ballance, Hamilton A. Ballance and Purves Stewart.
77 Case of Brain Tumor. A. C. Dutt.
78 *Graves' Disease in Association with Rheumatoid Arthritis. R. Llewelyn Jones.
79 Neurasthenia: The Wear and Tear of Life. Guthrie Rankin.
80 Case of Migraine, with Ophthalmoplegia. James W. Russell.
81 Case of Cerebellar Abscess Following Middle-Ear Disease. J. Grant Andrew.

76. Operative Treatment of Facial Palsy.—Starting with the results of their former investigations as regards nerve degeneration, the authors of this article have attempted to relieve facial palsy of peripheral origin by anastomosis between a natural healthy nerve and the distal segment of the paralyzed facial nerve. The method of procedure was as follows: 1. Assuring themselves by galvanic stimulation that the muscle fibers still survived on the paralyzed side, the facial nerve is exposed at its point of exit from the bone and cut across as high as possible and attached by lateral anastomosis to the spinal accessory. The results were only partially successful. The conclusions of the article are:

1. Peripheral facial palsy is remediable by facio-accessory anastomosis, but the extent of recovery appears to be limited to associated movements in conjunction with the shoulder. In most cases the previous deformity disappears when the face is at rest. 2. For reasons above stated we would in future recommend facio-hypoglossal anastomosis rather than facio-accessory. 3. The cases suitable for operation are those in which the paralysis has lasted so long that no recovery is to be expected, say, facial palsy lasting six months without any sign of recovery. In our opinion the sooner the operation is done after this date the better. 4. A supporative causal condition producing an infective neuritis renders the prognosis after operative treatment less favorable than in cases due to trauma.

78. Graves' Disease and Rheumatoid Arthritis.—Jones points out certain relationships between the two conditions and finds that his study would not so much suggest affinity between the two diseases as to indicate that they frequently co-exist. He says clinical research distinctly suggests some obscure relationship. He, therefore, offers the hypothesis of a fundamental element in the form of neuropathic diathesis and an accidental element in the presence of a possible source of toxemia such as aural sepsis, chronic indigestion, etc., in the etiology of the two disorders. Passing on from the etiologic factors to the clinical symptoms he remarks on the existence of involuntary spasm or cramps, they being present in both disorders and also remarks on the possible relationship of tetany, scleroderma, etc., and the part possibly played by the thyroid gland.

The Lancet, London.

May 2.

82 *Man's Cranial Form. Arthur Thomson.
83 An Analysis of a Further Series of 250 Consecutive Operations for Primary Cataract Performed in the Government Ophthalmic Hospital, Madras. R. H. Elliot.
84 *The Relation of Meconium to the Fetal Appendix. Alexander Low.
85 A Case of Acute Yellow Atrophy of the Liver. W. Ferris and W. H. Clayton-Greene.
86 The Dietetic Factor in Health Resort Treatment. Arthur P. Luff.
87 Congenital Displacement of the Hip. Noble Smith.
88 On a Case of Toxemia of Obscure Origin. Leonard Williams.
89 A Case of Tuberculous Peritonitis; Spontaneous Recovery. Henry F. Bellamy.
90 The Relation between Acetonuria and Acidemia in Cases of Gastric Ulcer. F. Golla.

82.—This article appeared elsewhere. See THE JOURNAL of May 16, ¶17, p. 1397.

84. **Meconium.**—In a recent Hunterian lecture Eccles stated that the lumen of the appendix is never a receptacle for

meconium. Low has systematically examined the fetal abdominal viscera and has frequently noticed the presence of meconium in the appendix. He tabulates a number of cases, and remarks as follows:

1. Small intestine: Meconium begins to distend the lower half about the middle of the fourth month and continues to do so to a variable extent till the end of fetal life.

2. Large intestine: Meconium begins to distend the rectum about the beginning of the fifth month, thereafter tending to accumulate in the cecum and then gradually distending the whole of the large intestine, so that after the seventh month dark-green meconium distends the large intestine in its whole length.

3. Appendix vermiformis: Meconium was noted to be present in the appendix as early as the middle of the fourth month and thereafter in nearly every case it was present in the appendix till the end of fetal life. The amount of meconium in the appendix varies; it seems to depend somewhat on the condition of the cecum—if the cecum is distended then the appendix is always distended, but there may be meconium in the appendix while the cecum is practically empty.

Journal of Tropical Medicine, London.

April 15.

91 *Tropical Hygiene. (Continued.) W. J. Simpson.
92 *Penetrating Wound of the Abdomen by a Sword-Fish. W. Renner.
93 *Tropical Life as It Affects Life Assurance. James Cantlie.

91. Tropical Hygiene.—The new environment affects the white man in the tropics, as Simpson points out, inducing susceptibility to disease. There is a change in the customary physiologic effects of certain organs due to the attempt on the part of the system to adapt itself to the new conditions. Until this process of acclimatization is complete, the patient is usually specially susceptible. The most important of the changes is the greater supply of blood to the surface of the body and the greater activity of the functions of the skin. The system does not get its equilibrium as regards heat for some time; the body temperature is higher than that in temperate climates. It is important to remember that exercise raises the temperature and may produce a fever simulating malaria. The capacity of the lungs is increased to some extent, owing to the new distribution of blood, but nevertheless they do less work because the number of respirations is decreased. The general tendency, in spite of the greater functional activity of the skin, liver, bowels and spleen, is to depress the vital activities. The pulse is slowed, the circulation retarded, digestion enfeebled, appetite lessened and nutrition depressed. The nervous system, which is at first stimulated, is later put in a state of tension which allows it to be easily affected by external impressions. All these changes may consort with general health and only an indiscretion or something of that kind bring about disease. The illnesses of the tropics, with the exception of those due to infection and parasites, are generally nervous and congestive, which may be attributed to climatic exposure. The nervous system may lose its tone and its governing power over the heat-regulating centers, or sustain a shock from which it can not recover. In the congestive class, the action of chills on a sensitive perspiring skin suddenly drives the blood from the surface of the body, inducing congestive disorders affecting the liver and bowels. Injudicious diet, clothing, bathing, etc., may here bring on these. The European in the tropics should avoid the tropical sun. New arrivals are more likely to suffer than old residents. The head and spine should be well protected and a pith helmet and spinal pad are useful. Outside of the five or six hottest hours of the day in the summer time, however, as much time should be spent in the open air as possible. Regular exercise short of fatigue is essential. If overdone, however, harm will result, and great care should be taken to prevent chilling after perspiration. A warm bath prevents chilling and is refreshing. Few people take cold baths in the tropics. A bath can be taken at any time except during the process of digestion. The dress is an important matter and should be of absorbent material, especially the underclothing, to prevent chilling from rapid evaporation. Woolen is better than cotton or linen, and next to wool, silk. The importance of having garments next the skin that will keep up a uniform temperature is dwelt on. Coarse flannel will irritate the skin; nothing but the finest material should be used. The kind of upper garments is of little moment so long as they are loose and light in weight. They should be light in color, as these absorb the sun's rays least. It is advisable for the newcomer to abstain from alcoholics, especially so if he is to undergo much exposure. If they are used they should be taken only at meals, preferably at dinner in the evening.

92. Impaled by Swordfish.—This case is of interest from its rarity. The sufferer was sitting on the gunwale of the boat and was impaled by a swordfish from the back, the blade projecting anteriorly about three inches, producing a wound of the liver, pancreas, duodenum and intestines, and causing death.

93. Life Insurance in the Tropics.—Cantlie remarks that the country situated between 33 N. and 30 S. of the equator is considered dangerous by insurance companies, while within these limits there are some of the healthiest countries to be found. When the Englishman goes to the tropics he first feels better, but the stimulation wears off in from six to eight months and the opposite condition obtains. The want of proper rest and sleep at night are especially detrimental. The younger the age at which the man proceeds to the tropics the greater the risk of contracting disease. The chances of the youth of 18 to the man of 25 of contracting disease are about 2 to 1; to the man between 30 and 40, 10 to 1. He never hesitates to recommend a man between 30 and 50 to proceed to the tropics to take up work there, but hesitates to advise any one under 21. Many diseases which are prevalent in temperate regions are almost unknown in the tropics. With a healthy heart and lungs the balance is best kept. It is the organs below the diaphragm that give trouble, chilling inducing congestive disorders, dysentery, etc.. while malaria, which is present in almost all countries, is robbed of its dangers at the present time. Good food can not be had, and in many cases the lack of it is the cause of a run-down condition, and alcohol is even a greater curse in the tropics than at home. Cantlie warns insurance company officials that one of the dangerous periods in the life of an old tropical resident is the first year or two after he returns to take up permanent residence at home, and he would advise the extra premium to continue 12 to 18 months after the return. Their rules are, as it is, too rigid and not suited to the varying conditions that exist.

Intercolonial Medical Journal of Australasia, Melbourne.

March 20.

94 *Our Metropolitan Asylums. J. W. Springthorpe.
95 A Neglected Form of Shoulder Injury. Fred D. Bird.
96 A Note on Asepsis in Ophthalmic Surgery. James W. Barrett and W. F. Orr.

94. Australian Asylums.—Springthorpe compares the Victoria asylums with those of New York state and Great Britain, to the decided disadvantage of the former. He uses the parallel-column system of showing the differences, and criticises the general management and the public support of the insane in his colony.

New Patents.

Patents of interest to physicians, granted April 14, 21 and 28:

725612. Crutch. George C. Calentine, Tacoma, Wash.
725542. Apparatus for administering gas. Graham Clarke, Cleveland, Ohio.
725331. X-ray tube. Theodor Friedlander, Chicago.
725086. Deodorizing or disinfecting apparatus. Moses Jacobs, New York.
725270. Vaginal syringe. Orville P. Moon, Lorain, Ohio.
725123. Sterilizing apparatus. Edwin Nichols, Newark, Ohio.
725483. Ophthalmoscope. Seth A. Rhodes, Chicago.
725593. Table device for sick beds, etc. Wilhelm Schleuning, Freihung-Oberpfals, Germany.
725688. Bandage. Elizabeth L. Ewing, Chicago.
725831. Suppository. Forest F. Feidler, Erie, Pa.
726044. X-ray tube. Theodor Friedlander, Chicago.
726054 and 726055. Human-treating apparatus. Isaac L. Hartford, Bloomington, Ill.
725726. Catamenial bandage. Wilhelm F. Laux, Reading, Pa.
725731. Cataphoric electrode. Samuel H. Linn, Rochester, N. Y.
726095. Exercising apparatus. John E. Nightingale, New York.
725987. Massage instrument. Charles Owens, Chattanooga, Tenn.
725876. Exercising apparatus. Charles H. Roche, Tonbridge, England.
726791. Depurator. Charles E. H. Armbruster, Denver.
726619. Clinical thermometer. Oscar G. Bell, Norwich, N. Y.
726635. Dispensing cabinet. Lute E. Campbell and W. B. Weaver, El Reno, O. T.
726532. Pessary. Leonard Hering, Isle St. George, Ohio.
726704. Rectal or vaginal speculum. Otto H. Kohlhaas, Calumet, Mich.
726472. Hospital bed. John R. Smith, Des Moines, Iowa.

Books Received.

Acknowledgment of all books received will be made in this column, and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

THE MEDICAL AND SURGICAL USES OF ELECTRICITY. Including the X-Ray, Finsen Light, Vibratory Therapeutics, and High-Frequency Currents. By A. D. Rockwell, A.M., M.D., Formerly Professor of Electro-therapeutics in the New York Post-Graduate Medical School and Hospital. With 252 Illustrations. New Edition. Cloth. Pp. 656. Price, $3.75. New York: E. B. Treat & Co. 1903.

THIRTY-FOURTH ANNUAL REPORT OF THE SECRETARY OF STATE ON THE REGISTRATION OF BIRTHS AND DEATHS, MARRIAGES AND DIVORCES IN MICHIGAN FOR THE YEAR 1900. Fred M. Warner, Secretary of State. Edited by Cressy L. Wilbur, M.D., Chief of the Division of Vital Statistics. By Authority. Cloth. Pp. 125. Lansing, Mich.: Wynkoop Hallenbeck. 1903.

THE DIAGNOSIS OF DISEASES OF WOMEN. A Treatise for Students and Practitioners. By Palmer Findley, B.S., M.D., Instructor in Obstetrics and Gynecology, Rush Medical College. Illustrated with 210 Engravings in the Text and 45 Plates in Colors and Monochrome. Cloth. Pp. 494. Price, $4.50. Philadelphia and New York: Lea Brothers & Co. 1903.

MANUAL OF DISEASES OF THE EYE, for Students and General Practitioners. By Clarence A. Veasey, A.M., M.D., Demonstrator of Ophthalmology in the Jefferson Medical College. Illustrated with 194 Engravings and 10 Colored Plates. Cloth. Pp. 412. Price, $2.00. Philadelphia and New York: Lea Brothers & Co.

TWENTY-NINTH ANNUAL REPORT OF THE SECRETARY OF THE STATE BOARD OF HEALTH OF THE STATE OF MICHIGAN, for the Fiscal Year Ending June 30, 1901. Cloth. Pp. 268. Lansing, Mich.: Wynkoop Hallenbeck. 1902.

The Public Service.

Army Changes.

Movements of officers of the Medical Department, U. S. A., under orders from the Adjutant-General's Office, Washington, D. C., from April 26 to May 10, inclusive:

Ashburn, Percy M., first lieut. and asst.-surgeon, is relieved from further duty at Ft. Assiniboine and will proceed to Ft. Missoula for duty.

Adair, George F., contract surgeon, is relieved from temporary duty at Ft. Morgan, and will proceed to Ft. Wadsworth for duty.

Bartlett, Cosam J., first lieut. and asst.-surgeon, having reported on route to join his station from leave, will proceed to Seattle, Wash., and await the arrival of Company I, 13th, and accompany that organization en route to its station, Ft. Liscum, Alaska.

Smith, Charles F., contract surgeon, is relieved from further duty at Ft. Sheridan, and will proceed to Ft. Leavenworth for duty.

Crampton, Louis W., major and surgeon, is relieved from duty at Ft. Adams and will proceed to St. Louis and assume charge of the medical supply depot in that city, relieving Major Harry O. Perley, surgeon, to enable him to take advantage of leave.

Clayton, Jere B., captain and asst.-surgeon, is relieved from duty at Vancouver Barracks, and will, on the opening of navigation on the Yukon River, proceed to Ft. Egbert, Alaska, to relieve Contract Surgeon C. A. Trenholtz, who will proceed to Vancouver Barracks, Wash., for temporary duty.

Edwards, James P., first lieut. and asst.-surgeon, now on duty at Ft. Leavenworth, is detailed as assistant to the instructor in the department of hygiene at the General Service and Staff College.

Stone, John H., captain and asst.-surgeon, now on duty at Ft. Leavenworth, is detailed as assistant to the instructor in the department of hygiene at the General Service and Staff College.

A board of officers, to consist of Major Chas. F. Mason, surgeon, Capt. Francis A. Winter, asst.-surgeon, Capt. Frederick P. Reynolds, asst.-surgeon, is appointed to meet at the office of the Surgeon-General of the Army, May 18, for the following purposes: To revise the drill regulations and outline for first aid for the hospital corps; to recommend a course of instruction for the companies of instruction hospital corps; to prepare a scheme of instruction for the hospital the hospital corps detachments; to consider the desirability of a side arm for members of the hospital corps, and to recommend one if found desirable.

Navy Changes.

Changes in the Medical Corps of the Navy, for the week ended May 9:

Surgeon D. O. Lewis, detached from the *Pensacola* and granted sick leave for three months.

Asst.-Surgeon H. Shaw, ordered to the *Yankee*.

A. A. Surgeon P. L. Cooke, detached from the Naval Academy and ordered to the *Chesapeake*.

Asst.-Surgeon R. H. Michels, ordered to the *Wisconsin*.

Asst.-Surgeon H. F. Strine, P. J. Traynor, J. L. Neilson, F. M. Munson, R. A. Bachman, ordered to the Asiatic Station, via *Solace*, May 15.

Surgeon T. A. Berryhill, detached from the Navy Yard, Pensacola, Fla., and ordered to the *Baltimore*.

Surgeon W. F. Arnold, detached from Port Isabela, P. I., and ordered to Naval Hospital, Yokohama, Japan.

Asst.-Surgeon R. K. McClanahan, detached from the Naval Station, Polloe, P. I., and ordered to the *Oregon*.

Asst.-Surgeon J. W. Backus, detached from the *Princeton* and ordered to the *Helena*.

Asst.-Surgeon H. A. Dunn, detached from the Naval Station, Cavite, P. I., and ordered to the Naval Station, Olongapo.

Asst.-Surgeon R. E. Hoyt, ordered to the *Texas*.

Asst.-Surgeon B. T. Jenness, ordered to the *Indiana*.

Marine-Hospital Changes.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended May 7, 1903:

P. A. Surgeon J. A. Nydegger, Bureau order of April 21, 1903, directing him to proceed to Gulf Quarantine and assume command of service at that port revoked.

P. A. Surgeon M. H. Foster, granted leave of absence for two days.

Asst.-Surgeon J. W. Kerr, granted leave of absence for two days from May 7.

A. A. Surgeon J. C. Ballard, granted leave of absence for twenty days from April 23.

A. A. Surgeon T. C. Frary, granted leave of absence for one day.

A. A. Surgeon J. G. Grace, granted leave of absence for nine weeks.

A. A. Surgeon H. Marr, granted leave of absence for thirty days from May 10.

Pharmacist C. H. Woods, granted leave of absence for twenty days amended so as to be for nineteen days.

Pharmacist E. M. Holt, granted leave of absence for thirty days from May 5.

PROMOTION.

C. W. Stephenson, pharmacist of the third class, promoted to be pharmacist of the second class, effective April 1, 1903.

BOARD CONVENED.

Board convened at the Marine-Hospital, San Francisco, May 2, 1903, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Asst.-Surgeon Carl Ramus, chairman; Asst.-Surgeon C. W. Vogel, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended May 9, 1903:

SMALLPOX—UNITED STATES.

Alabama: Mobile, April 25-May 2, 4 cases.
California: San Francisco, April 19-26, 8 cases.
District of Columbia: Washington, April 25-May 2, 1 case.
Illinois: Belleville, April 24-May 1, 15 cases; Chicago, April 25-May 2, 15 cases, 2 deaths; Galesburg, April 25-May 2, 4 cases; Joliet, Dec. 29-March 2, 30 cases, 2 deaths.
Indiana: Elwood, April 26-May 3, 7 cases; Indianapolis, April 27-May 2, 5 cases, 2 deaths; Kokomo, April 27-May 2, 1 case.
Iowa: Des Moines, April 27-May 4, 2 cases; Dubuque, April 26-May 2, 1 case.
Kentucky: Lexington, April 26-May 2, 1 case; Louisville, April 1-30, 55 cases, 4 deaths.
Louisiana: New Orleans, April 18-May 2, 14 cases (2 imported).
Maine: Biddeford, April 26-May 2, 1 case; Franklin County, May 7, 20 cases; Rumford Falls, May 3, 1 case.
Maryland: Baltimore, April 26-May 2, 2 cases.
Massachusetts: Fall River, April 26-May 2, 2 cases.
Michigan: April 26-May 2, Detroit, 12 cases; Flint, 1 case; Grand Rapids, 2 cases; Port Huron, 2 cases.
Minnesota: Winona, April 26-May 2, 1 death.
Nebraska: Omaha, April 26-May 2, 1 case; South Omaha, April 1-30, 7 cases.
New Hampshire: April 25-May 2, Manchester, 11 cases; Nashua, 3 cases.
New York: April 25-May 2, Buffalo, 1 case; Elmira, 1 case (imported).
Ohio: Cincinnati, April 24-May 1, 5 cases; Cleveland, April 25-May 2, 1 case; Dayton, April 25-May 2, 3 cases, 2 deaths.
Pennsylvania: Carbondale, April 23-30, 1 case; Dunmore, April 1-30, 5 cases; McKeesport, April 25-May 2, 6 cases; Philadelphia, April 25-May 2, 16 cases, 4 deaths; Pittsburg, April 11-18, 24 cases, 7 deaths; April 25-May 2, 5 deaths; Pottsville, April 1-30, 2 cases.
South Carolina: Charleston, April 25-May 2, 4 cases.
Tennessee: Memphis, April 25-May 2, 2 cases.
Utah: Salt Lake City, April 25-May 2, 11 cases.
Wisconsin: Green Bay, April 26-May 3, 1 case; Milwaukee, April 25-May 2, 3 cases.

SMALLPOX—FOREIGN.

Austria: Prague, April 4-18, 8 cases.
Belgium: Brussels, April 11-18, 5 deaths.
Canada: Halifax, April 25-May 2, 1 case; Owen Sound, April 29, present; Quebec, April 25-May 2, 1 case.
China: Hongkong, March 14-21, 1 case, 1 death.
Colombia: Barranquilla, April 19-26, 1 death.
France: Marseilles, March 1-31, 32 deaths.
Great Britain: Birmingham, April 11-18, 50 cases; Bristol, April 11-18, 2 cases; Dublin, April 4-18, 34 cases, 2 deaths; Dundee, April 11-18, 2 cases; Leeds, April 18-25, 19 cases; Leith, April 4-11, 1 case; Liverpool, April 11-18, 94 cases, 7 deaths; London, April 4-11, 5 cases; Manchester, April 11-18, 5 cases, 1 death; Newcastle-on-Tyne, April 11-18, 4 cases; Nottingham, April 11-18, 2 cases; Sheffield, April 4-18, 6 cases; South Shields, April 11-18, 2 cases.
India: Bombay, March 31-April 7, 80 deaths.
Netherlands: April 18-25, Amsterdam, 1 death; Rotterdam, 1 case.
Russia: St. Petersburg, March 28-April 11, 43 cases, 7 deaths; Warsaw, March 28-April 4, 3 deaths.

YELLOW FEVER.

Colombia: Panama, April 23-30, 2 cases, 1 death.
Ecuador: Guayaquil, April 4-11, 2 deaths.
Mexico: Tampico, May 4, 1 death; Vera Cruz, April 25-May 2, 9 cases, 3 deaths.

CHOLERA—INSULAR.

Philippines: Manila, March 14-21, 4 cases, 3 deaths; Provinces, March 14-21, 203 cases, 130 deaths; not previously reported, 421 cases, 231 deaths.

PLAGUE.

China: Hongkong, March 14-21, 28 cases, 28 deaths.
India: Bombay, March 31-April 7, 1,827 deaths; Karachi, March 22-29, 192 cases, 152 deaths.